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The Use of Color in Industry

INTEREST in the use of color in industry has increased in recent years. In its eagerness to improve working conditions and reduce fatigue, eyestrain and tension, management is reviewing the experiences of color users, is learning the best scientific methods of applying color to work areas, and is studying the actual effects of color programs upon workers.

To obtain information on the subject, the National Industrial Conference Board distributed inquiry forms to approximately 350 companies having color programs in the United States and Canada. Few statistics are available on the use of color in industry, and many of these companies were unprepared to evaluate their programs primarily because of the difficulties involved in measuring the effects of a service as intangible as color. Although color programs are in many instances too new for analysis, sixty-eight cooperators have reached conclusions which may be helpful to companies contemplating introduction of color programs.

ELEMENTS OF COLOR

Business organizations are primarily concerned with the scientific application of color to industrial situations in order to improve working conditions and environment. Its principal aim is to utilize ratios of brightness established as practical, effective and safe for industrial usages by ophthalmologists and lighting authorities.

But what are the advantages of brightness? What taxes vision and causes eye fatigue? Such questions are highly technical. Faber Birren,[1] in a recent article, furnishes the following answers in clearly defined and nontechnical terms.

> "Brightness holds advantage over darkness in the action of seeing. Not only does it stimulate the retina and regulate the pupil opening, but it is psychologically more compelling. . . .
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> "Today, one basic fact seems to be universally agreed upon—'that a human being sees best and visual fatigue is reduced to a minimum when the entire field of view is of approximately the same luminosity as that to which the fovea is adapted.' (Parry Moon.) Thus an orderly discussion of recommended practice in the use of illumination and color may be set off to a good start. Where luminosities are not uniform and where severe contrasts exist within the field of view, vision is taxed and glare conditions are present. . . .
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> "Most of the discomfort associated with so-called eyestrain is due more to efforts at accommodation, muscular imbalance and the like rather than to overstimulation of the retina. The human eye can look alternately at moderately high brightness and low brightness without undue discomfort and strain, if in each instance the whole field of vision is involved. However, if high brightness and low brightness exist in the same field of view, and if they must be concurrently rather than alternately accepted by the eye, trouble will set in and vision will be inimically taxed."

Many terms describe color but the following are used most frequently in connection with company color programs:

Hue: The specific quality which makes possible a differentiation between colors. For instance, it distinguishes red from green and blue from orange.

Tint: Color produced by adding white to a pure color.

Shade: Color produced by adding black to a pure color.

[1] Faber Birren, "The Specification of Illumination and Color in Industry," Transactions of the American Academy of Ophthalmology and Otolaryngology, January–February, 1947.

Tone: Grayed color.

Value: Light and dark qualities of color.

Chroma: Saturation of color. It signifies apparent weakness or strength (red is a color of high saturation and gray a color of low saturation).

THE POWER OF COLOR

While no two persons react identically to a situation, individuals have, nevertheless, built up certain fairly constant reactions to color which, within reasonable ranges, represent the feelings, sensations and emotions of large numbers of people. For instance, it is known, through scientific surveys, that red is a stimulating color for the majority of persons. Red tends to excite individuals in varying degrees from the pure color on through its different shades and tints. Yellow is considered a cheerful influence, green tranquil, and blue subduing.

Warm and Cold Colors

Various temperature effects also seem to be related to certain hues and are considered especially effective in some work situations. For instance, there are colors such as scarlet and yellow which create a feeling of warmth, although it is generally believed that the greatest warmth is derived from orange or red-orange. Blues and greens of nature applied to industrial interiors are generally cooling and refreshing to workers subjected to unusually warm temperature conditions. Green-blue is generally accepted as the coolest.

One company reports an interesting response to the use of warm colors in its plant. Soft rose tints were substituted for oyster white walls of a recreation room which was rarely used. Employees apparently had considered the room cold and unpleasant because the introduction of color was followed by an immediate increase in the room's use. Employees began to express appreciation for the room's additional "warmth" although no additional heat was supplied to the area nor were other changes made to improve the appearance of the room. It was assumed, therefore, that the rose tints used on the walls were directly responsible for the favorable comments of employees.

Color Preferences

In choosing and preparing colors, practical experience has shown that incorrect shades and tints of any hue can entirely destroy desired end results. Since functional colors have definite purposes, they cannot be carelessly selected or applied. Where safety is concerned, for example, incorrect shades can result in accidents and injury, since the worker can become confused and misinterpret the intended meaning of the applied color.

Color authorities have observed that persons have pronounced color preferences. Generally speaking, the most favored colors are blue, red and green, while the least preferred are purple, orange and yellow.

Despite these preferences, however, color authorities cooperating with The Conference Board agree that colors in their pure forms should be used sparingly since their effects are too strong when applied to large areas. This is one reason why tints are generally used on the walls of modern living quarters and in industrial interiors.

In planning color schemes, one readily recognizes that some colors harmonize while others are wholly incompatible. In work places, colors which do not harmonize tend to distract workers, and are, therefore, usually avoided.

Education Needed

Color programs are justified only if the individuals subjected to them develop a practical awareness of the purposes or meaning of color. The educational process related to the introduction of a color program may be a slow one even where safety is concerned. Employees in one company ridiculed a color program until the actual meanings of the applied colors were explained to them by the safety director. They were then able to associate the colors with past experience and thus recognize that the color program was intended to protect them from accident and injury. Colors of high intensities are generally most effective in promoting safety action because they forcibly attract attention.

COLOR AND PERCEPTION

Color improperly used can deceive an observer until he fails completely to see objects in their proper perspectives. Failure to recognize correctly such factors as proportion, weight, size, distance and space are not uncommon causes of employee casualties and fatigue.

One of the best-known illustrations of vision deception is related to color contrast. A white circle may appear red, for instance, against one color surface and green against another color surface. Through properly directing the worker's attention to important work areas, contrasting colors, it is believed, can improve visibility and decrease accidents.

Contrasting colors can affect the general attractiveness of company cafeterias, too. Foods placed against uncomplimentary color backgrounds may appear unpalatable and unappetizing to observers.

In situations where warm and cold colors are used, contrast tends to make the warm colors more easily discernible and the cold colors less distinct and clear. For instance, buff applied to critical parts of machinery brings those parts to the immediate attention of the worker, while an over-all green used on the rest of the machinery tends to relegate that part to the background of the worker's vision.

Of equal importance to companies is the apparent change in size of objects when their brightness factors are increased by color or light. Bright objects usually appear larger than dark ones of the same size. Darker objects appear heavier and more durable than those of brighter hues. A light-colored ceiling gives the impression of space and airiness, while a dark one often appears heavy and depressing. One company recently tested these principles by applying light paint to the structural beams and supporting posts of a large but unattractive club room. The beams and posts immediately appeared less cumbersome and heavy, the ceiling seemed higher, and in general the room looked more spacious. The results were reported as "startling," since the hitherto unused unit became a center of activity. Employees remarked upon the many advantages of the "larger room" although actually no structural changes were made in the unit.

Visibility

Visibility is improved when color values are contrasted. There is, however, some controversy among color specialists concerning the hues which provide the greatest degree of visibility.

According to some authorities, the following contrasts, in order of their effectiveness, are generally desirable for good visibility under normal lighting conditions:

1. Black on yellow
2. Green on white
3. Red on white
4. Blue on white
5. White on blue
6. Black on white
7. Red on yellow
8. Green on red
9. Red on green[1]

Where light is intense in an area, a high degree of background brightness is confusing and can distract attention from the object which should be clearly visible to the worker. Where light is dim, a bright background aids the worker in distinguishing an important object.

Putting Black on White

Under good lighting conditions, black on white, it is generally considered, provides the highest degree of visibility for signs or illustrative materials. However, black and white are not necessarily compelling colors. For this reason, companies frequently choose attention-getting colors on safety posters and signs, believing that the increased reaction to them will compensate for any loss of visibility.

[1]Faber Birren, "Functional Color," The Crimson Press, New York, 1937, p. 48

Black on yellow is especially good in attracting attention under all lighting conditions and is particularly useful in highway signals, warning signs and on coming hazards. Yellow is the accepted standard for school buses.

WORKING OUT THE PROGRAM

Companies cooperating in this report give many reasons for introducing color into their plants and offices. The most frequently mentioned are:

1. Improvement in working conditions;
2. Reduction of accidents;
3. Improvement in housekeeping and orderliness;
4. Identification of pipes, equipment and hazards;
5. Relief of eyestrain;
6. Improvement in morale.

In order to achieve these benefits, it is generally agreed that before planning a color program it is important to outline in detail the proposed functions of the program. A color program is not a phase of interior decorating, although colors generally improve the appearance of the areas to which they are applied. Colors used in industry should be practical and have purpose.

Several of the cooperating companies which have not applied their color programs to all parts of the plant and office have used them to determine the areas and work situations which could derive the greatest benefit from color. The first step they suggest is to study all lighting effects, possible hazards and equipment and other work situations which can affect the safety and attitudes of employees. Are there unnecessary shadows and glare which can result in eye fatigue? Are hazards clearly marked? Are interiors gloomy and depressing? The study of discontent in one department revealed that dark interiors actually prompted transfer requests and high turnover rates.

Color Schemes for Industry

Fundamentally all color uses in industry are related to health and safety. Reduced tension and fatigue can lower accident rates as well as attention directed toward specific hazards. For this reason color programs are more complicated procedures than the mere application of color to an area which needs painting.

There is ample evidence that considerable thought and time were expended by the sixty-eight companies participating in this survey in planning color schemes for industrial situations. Thirty-seven consulted specialists for information on programming before applying functional color to their factories and offices. In twenty-six of the companies, various employees, including color committees, safety and maintenance engineers and paint shop foremen, planned the color schemes.

The seven major points of attack were traffic lanes,

Table 1: Color Programs

Color Uses	No. of Plants and Offices
Traffic lanes	52
Plant Hazards	43
Special equipment	
First-aid equipment	46
Fire equipment	63
Machinery	
Critical parts	39
Critical areas	27
Lubrication points	9
General equipment	27
Interiors	
Walls	62
Ceilings	61
Floors	26
Identification of pipes	46

plant hazards, special equipment, machinery, general equipment, interiors, and pipes. (See Table 1.)

Color Codes

Forty-two of sixty-eight cooperators are using specific color codes to warn workers of possible industrial hazards. In general, however, there is little uniformity of coding. Several executives in companies with considerable experience in the application of uniform codes assert that lack of uniformity is not only confusing to workers who are transferred to new work areas, but may actually retard prompt action in time of emergency. One of these executives cited an instance in which a fire occurred and a new employee, believing he was racing toward fire equipment, ran toward a red vending machine.

Several well-known safety codes have been used throughout the country. In 1945, the American Standards Association approved a comprehensive safety code for marking physical hazards and identifying certain types of equipment throughout the nation.[1] The American Standard Code consists of three basic colors—red, yellow and green—plus the application of black and white in certain situations.

While there may be many hazards in an industrial plant, the number of safety colors have been kept to a minimum in order to avoid confusing the worker.

The ASA approved code has been supplemented in some instances by the use of additional safety colors. Some plants use orange to identify parts of machinery or equipment which might injure the worker, such as cutting devices, pulleys and interiors of fuse boxes and electrical switch boxes. One company uses orange on the tripping or reversing mechanism of a planer in order to alert the worker against the possibility of getting hands or legs caught in moving machinery. Companies using the colors approved by the ASA apply yellow instead of orange for this purpose.

[1]"Safety Color Code for Marking Physical Hazards and the Identification of Certain Equipment—American War Standard," approved by the American Standards Association, 1945.

Several cooperators have added blue to their safety color codes. Blue signs are used to warn workers that machinery and other types of equipment are under repair and should not be started until warning signals are removed. It is applied to switch control boxes and other power centers so that they may be easily located in cases of emergency.

Yellow for Caution

The majority of cooperators apply red to fire protection equipment and apparatus including alarm stations and fire bells, extinguisher locations, fire buckets and sprinkler mains. In some instances, bands of red are painted directly under and around posts upon which fire protection equipment is located. The bands tend to prevent accumulation of litter in these areas by warning workers of their significance, and also aid in immediate identification of the equipment. Red bands and squares are occasionally painted on wall areas to which fire protection equipment is attached. Since the red squares can be seen from a distance, they are particularly helpful in speeding up location of equipment when emergencies occur.

Color and color symbols are applied to first-aid equipment used in forty-six of the cooperating companies. Green or red crosses on white or cream backgrounds are generally used to identify first-aid cabinets, stretcher boxes, first-aid and hospital rooms and, in some instances, safety showers, respirators, gas masks and salt tablet containers.

Yellow, approved by the American Standard Code as a caution color, is used quite extensively by cooperators to identify tripping and moving hazards, changes in floor elevation, low overhead hazards, trucking equipment, curbings, low beams and pipes, guard rails, various aisle obstructions, platform edges, hoist blocks, railings, dead ends and traffic lanes.

One company applies black and yellow stripes to a chip guard of a planer. The high visibility of the yellow alternated with black attracts the attention of the worker and warns him that there is moving machinery.

Directing Plant Traffic

Caution stripes applied to the guard rail of a lathe bed have been found useful in (1) protecting machinery from truck handles and other like objects which might fall against and damage the machinery, (2) warning workers against possible dangers such as falling against machinery in motion, and (3) protecting the operator from casualties which might result from machine damage caused by objects falling against or into the mechanism.

Identification of tripping hazards is the principal purpose of applying caution stripes to the platform, bumper and other parts of a hydraulic hand lift truck

used in one factory. Because of close proximity to the floor, low parts of equipment are often overlooked by workers and are the cause of many tripping and falling accidents which result in serious injuries. The stripes used in this case are approximately two inches wide and can, therefore, be easily seen from a distance. Color is also applied to the handle shaft of the truck and serves as a warning to workers who might bump into the shaft in its vertical position or trip over it in its horizontal position.

White, either alone or in combination with black, is used occasionally by cooperators to maintain good housekeeping and to direct factory traffic. Various companies apply white to traffic controls, corners, waste receptacles and their immediate floor areas, aisle markings and areas used for storage and truck parking.

In some instances symbols are used to designate locations of containers. This procedure not only improves orderliness but also directs attention to missing equipment.

White is applied to stair risers in some plants, although yellow is also used to warn workers of this tripping hazard.

Piping Systems

To promote safety and also to facilitate maintenance, codes have been introduced to identify various pipes. According to the plan approved by the American Standards Association, "the principal requirements for a standard scheme for the identification of piping systems are: (1) distinguishability, (2) flexibility, (3) inclusiveness, (4) simplicity, (5) practicality and (6) rationality."[1]

The scheme approved by the ASA provides for the application of color over the entire length of the piping system or in bands about eight to ten inches wide placed near valves and at other important points along the pipes. The bands permit identification of pipes even though the remainder of the piping system is painted to meet illumination or decorative requirements.

If further identification of fluids contained in a piping system is desired, the following procedures are frequently adopted: (1) One or more stripes of color can be added to the edges of the major identification band and (2) stenciled letters, words, or figures can be placed on the band.[2]

Some companies use red, green and yellow for this purpose. It is important to remember, however, that the subsidiary colors are used only for coding and their major powers are, therefore, discounted when they are used as supplements in this color scheme.

The ASA approved code groups materials carried in industrial piping systems into the following five major classes:[1]

Class	Color
F—Fire protection equipment	Red
D—Dangerous materials	Yellow (or orange)
S—Safe materials	Green (or the achromatic colors—white, black, gray or aluminum)
(and when required)	
P—Protective materials	Bright blue
V—Extra valuable materials	Deep purple

These particular colors were selected for these uses mainly because they are easily distinguishable from each other and danger of misinterpretation is thereby minimized.

Experience of several companies indicates that the first step in coding is to list all materials used in the piping system throughout the factory. When this is done, the various fluids can then be grouped into their respective classifications. Since certain products can be safe or dangerous under different circumstances, it is recommended by authorities that those materials should always be classified as dangerous fluids. This tends to avoid misinterpretation or the possibility of confusion or poor judgment in time of emergency.

In addition to color, some companies use symbols to assist persons affected with color blindness in identifying hazards and other industrial situations to which color codes are generally applied.

Machinery

In order to reduce tension and eye fatigue to a minimum, specially designed colors are frequently applied to critical and noncritical parts of machinery. Some executives stress the importance of applying to machines colors which contrast with those of the products in process of manufacture so that the worker will not have to exert unnecessary attention to distinguish between the two surfaces. Improved visibility resulted from the application of light and medium tan to the machine and shield of an inclined press. The soft light background facilitates the operator's task and also provides an excellent contrast to the work material being processed.

Light buff has been applied successfully to the dials of a jig borer machine. Since precision is of utmost importance in this particular operation, the buff provides clear visibility as well as a clean light surface upon which dust and dirt can very easily be detected.

In addition to improving reflection, light paint used on machinery serves as an effective background against which grease dripping from various parts of the machinery can be readily detected and corrected before serious damage occurs. It is also reported that the application of color to machinery in large work

[1]"Recommended American Practice Scheme for the Identification of Piping Systems," approved by the American Standards Association, New York, 1928.

[2]Ibid

[1]Ibid

areas creates an impression of orderliness and cleanliness.

Nine cooperators use color codes to indicate lubrication points on machinery. This is one of the newer applications of color which apparently is gaining in popularity since several other plants are planning to add the practice to their color programs. The ASA has approved a special code for this purpose.[1]

Industrial Interiors

Color programs for industrial interiors are concerned essentially with light and color. The two are inseparable since they depend upon each other for their maximum effects. Lighting is expected to provide satisfactory seeing conditions without requiring eye strain or interference with seeing ability. It is important to direct light energy to avoid glare and spottiness. Both direct and indirect lighting can be used effectively in industrial situations provided exposed light bulbs and tubes do not fall within the worker's field of vision.

The importance of the illumination system in relation to functional colors is evidenced by the fact that twenty-three companies changed their lighting systems as the first step in their color programs.

Colors used for factory and office interiors are chosen mainly for their visual and emotional values. It is logical, therefore, to select those colors which conserve light and do not disturb or overstimulate employees. Since workers spend many hours in factories and offices, it is also important to choose interior colors which are easy to live with and are enduring in their functional effects. For this reason, color extremes and purposeless decoration are generally avoided in industry. Cost of maintenance is also a consideration. Several cooperators report that grayed tones are as practical as dark depressing colors and do not present unusual maintenance problems, but they do tend to improve general cleanliness in the areas to which they are applied.

Interior colors are not coded since those used for this purpose are generally selected to meet local requirements.

Ceiling and Wall Colors

White is generally recommended for ceilings since it reflects about 80%-85% of light. There are instances, however, in which tints are used satisfactorily. The choice of tint depends largely upon the exposure of the room and the light reflection required for satisfactory job performance.

While ceilings are usually beyond the individual's normal vision range, it is important to reduce their glare to the minimum. No one type of paint is recommended for this purpose, although color authorities suggest the use of mat-finish or flat paint for ceiling areas, since they tend to reduce glare and shadows.

Wall colors used in industry are generally expected to reflect light as well as relieve monotony and fatigue. There are two schools of thought concerning the application of color to walls. One favors the use of white or off-white, while the other recommends soft hues for these areas. The first school bases its theory upon the need for maximum illumination, while the second is convinced that darker or tinted walls require less attention from the worker and serve as excellent backgrounds for brightness factors of industrial operations.

To satisfy light requirements, colors should be selected which have fairly high reflection factors. A reflection of approximately 50% has been suggested as a good value for this purpose. Pure colors are not recommended for walls because their reflection values are very low and their powers so strong that they tend to affect workers adversely. In general, soft, pale, grayed tints, such as cream, which reflects about 70% light, ivory (64%), yellow (60%), buff (56%) and pale green (54%) are recommended by an authority for wall areas in plants and offices.[1] These percentages diminish when the paint or surface becomes soiled. While these colors are preferred for industrial walls other tints have been used successfully in some instances. Tints of rose and blue are considered effective in some plant situations. Several companies report that these two colors are particularly popular in cafeterias and rest rooms.

Avoiding Shadows

Where walls are exceptionally high or in cases where additional light is required for specific tasks, wall tints are occasionally extended only so far as normal vision range and white is used on upper walls to provide maximum reflection. White is often applied to the uppermost part of an unevenly proportioned wall in order to level off wall heights and even up the colored wall areas which fall within the workers' vision range. White, used in this manner, also aids in preventing distracting shadows which usually occur in irregular ceiling areas.

Contrasting wall colors are often effective in large work areas. Colors selected in these cases are reported as useful in relieving monotony and tension of workers and in affording relief and relaxation from tasks which require a high degree of concentration.

Contrasting wall colors are also used to reduce problems related to temperature conditions, to minimize undesirable room proportions and to provide color contrast for products in process of manufacture.

In factories where there is large window expanse, white is often applied to upper walls and to the nar-

[1]"Color Code for Lubrication of Machinery," approved by the American Standards Association, New York, 1945.

[1]Faber Birren, "Functional Color," The Crimson Press, New York, 1937, p. 92.

row areas between the windows, leaving the dado the only part of the wall to which color is applied. Decision in these cases depends largely upon the size of the between-window spaces and the light reflection and visual relief required by employees.

For esthetic reasons, colorists believe that wall and dado colors should harmonize. Dados are generally medium dark in color in order to facilitate maintenance. According to one authority they should reflect between 25% and 40% of light. Darker tones are recommended in some instances where dados are subjected to unusual industrial stains. But dark dados are poor light reflectors and may encourage careless housekeeping.

The preferred height of a dado is controversial. One authority suggests that a dado of approximately five feet is satisfactory in most cases. The dado serves several purposes. It is often an effective contrasting background for light-colored machinery, and frequently serves as an aid in concealing finger marks on stairway walls.

Occasionally black lines are used to divide dado and upper wall areas and are thereby helpful in warning workers that they are approaching stairway landings or changes in stairway directions.

Supporting pillars are generally painted the same colors as the walls. If the pillars constitute danger, conspicuous safety colors and symbols can be applied to them.

Floor Colors

Improvement in reflection is the primary purpose of applying light paint to factory and office floors, with the preferred reflection ranging from 20% to 30%.

Light floors are also believed to reduce accidents caused from dripping grease since these hazards are readily detected on light backgrounds and can be removed before accidents occur.

No one color is suggested by color authorities for floors. Choice depends largely upon local needs, such as reflection requirements, color of manufactured product, types of operations involved and the general color scheme in use in the factory. Grayed tones are generally more satisfactory since they are easier to keep clean than the lighter tones.

EFFECTS OF COLOR

While some employees tend to criticize the use of color when it is first applied to factory and office situations, the majority are pleased with the programs that have been provided. But the effects of color are not always immediate.

Color users report that, in many instances, results are not evident until the novelty of the program has worn off and the workers understand and appreciate the meaning of the colors which are applied for their safety and well-being.

Housekeeping

Color used in industry has improved factory housekeeping, according to fifty-two of the sixty-eight cooperators. Employees take greater pride in keeping newly painted work areas, machinery and equipment clean and tend to censure other workers who are careless and untidy in their work and in handling equipment.

In some instances, janitor service has greatly improved, probably because possible neglect of corners and other obscure places is discouraged by color contrasts and light backgrounds. Color programming has increased janitor costs in some cases, however, since additional cleaning is often necessary to keep newly painted areas free from previously undetected grease and dirt. Several companies directed attention to this additional cost although they considered it reasonable in view of the improved sanitary conditions.

On the other hand, some companies say that color decreases costs of maintenance. In these companies, equipment is returned to its proper place and is less likely to be subjected to careless handling which often results in breakage and unwarranted repair.

Lighting Costs and Effects

Opinion varies concerning the effects of color upon lighting costs in industry. Reports from some companies indicate that lighter backgrounds produce more light in work areas and therefore indirectly decrease lighting costs.

Power costs are proportionately increased in instances where the application of color reveals a need for additional wattage. In these cases the higher rate is for the additional power used to improve visibility and is, therefore, not an increase for which color, in itself, is responsible.

Safety

Forty-four of the cooperators, or 64.7%, believe that color programs improve the effects of lighting in plants and offices. As previously indicated, lighting values are generally increased where color is used; shadows are eliminated and a more uniform lighting is achieved.

According to some reports, the effects of color are noticeable only when the paint is new. Frequent painting is, therefore, considered necessary.

Improved housekeeping, identification of equipment, and attention directed to plant hazards through the use of color have reduced accidents in thirty-seven of the plants and offices. Workers know where to find required equipment, since it is clearly identified, and

so avoid using substitutes which so often result in injuries. There is less danger of tripping and falling when benches are returned to their proper places and fewer casualties when moving trucks operate within clearly marked traffic lanes.

Individual Production

Since many factors enter into the efficiency of workers it is difficult to measure accurately the effects of color upon individual production.

Nineteen of the cooperators, or 27.9%, have observed their programs sufficiently to report production increases. The maximum increase noted is 7%. The experience of many more companies is needed before reliable production figures can be predicted.

Quality of Work

Twenty-one of the cooperators, or 30.9%, believe that color improves quality of production. The reason most frequently given is that the scientific application of color increases visibility. Eleven companies believe that color does not contribute in any way to the reduction in the number of "imperfects" and "rejects."

Employee Health

Less eyestrain, decreased nervous tension, fewer headaches and diminished fatigue result from color programs according to thirteen of the cooperating companies. Twelve cooperators notice no changes in employee health after using color. The remaining plants and offices have not yet reach conclusions on the subject.

Employee Attitudes

The following are representative comments of cooperating executives with respect to the effect of color on the attitudes of their employees:

> "Employees are happier when work areas are more pleasant and attractive."
>
> "Color relieves monotony of factory surroundings."
>
> "Workers are more contented with their jobs when color is used in the plant, especially if it is applied to moving parts of machinery."
>
> "Morale is greatly improved."
>
> "Employees enjoy the various color schemes used throughout the plant and offices."

It is also reported that color applied to recreation rooms results in greater relaxation for the tired workers.

A few cooperators have qualified their statements on the value of color with the observation that some workers are dissatisfied with the colors used in their departments and prefer gray and white for interiors. In other instances, employees request frequent painting for cleanliness and brightness and show no interest whatsoever in the colors chosen for the purpose.

Absenteeism

Ten of the cooperators, or 14.7%, give credit to their color programs for reducing absenteeism, while fourteen cooperators have noticed no changes in attendance since applying color to their factories and offices. It is generally believed that such health factors as decreased eyestrain and reduced tension resulting from the service may indirectly influence absence rates, but as yet there are few facts available to substantiate the assumption.

Turnover

The majority of cooperators believe that color is a minor factor in the reduction of turnover. Instances are reported, however, in which companies having color programs are given preference by job seekers.

EMPLOYER COMMENTS

Color programming in industry is still in its experimental stages. Technical problems, such as program interference caused by unusual atmospheric conditions and the corrosive nature of some products, still remain to be solved. There is also much to be learned about the actual effects of color upon workers.

Table 2: Evaluation of Color Programs

Evaluation	No. of Cooperators	% of Total
Entirely satisfied with color programs	23	33.8
Well satisfied with color programs	28	41.2
Not very well satisfied with color programs	3	4.4
Not at all satisfied with color programs	1	1.5
No opinions stated	13	19.1
Total	68	100.0

Several reports indicate that benefits derived from the application of color to industrial situations have exceeded expectations. Many of the cooperators are convinced that, since frequent painting of factories and offices is required in any case, the scientific application of color is no more expensive than the dark dull colors previously used and the over-all results are more satisfactory. In a few cases, however, replies indicate that costs of installation and maintenance have exceeded advantages derived.

Fifty-six of the sixty-eight cooperators are planning to expand their present programs, while three are not sufficiently impressed with the service to consider extension. The remaining nine participants are not ready to discuss expansion at this time.

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Conducting a Personnel Administration Institute

DOES training, like charity, begin at home? At General Foods they think it does. To help raise the standards of personnel administration throughout the corporation, the headquarters personnel staff recommended to the operating vice presidents a one-week personnel administration institute to which line executives might send their personnel men. The plan received the indorsement of operating executives throughout the company, with the result that fifty-three personnel men from all parts of the United States and Canada met to discuss the content and objectives of the personnel function of the company.

The institute was held in New York and ran for five consecutive days. Meetings were from 9:00 a.m. to 12:30, and from 2:00 p.m. to 5:00 p.m. The group in attendance included division personnel managers, plant personnel managers, and specialists from the headquarters staff. Under the chairmanship of Thomas G. Spates, Vice President, Personnel Administration, the faculty was drawn from staff specialists, division personnel managers, and, in one instance, an operating plant manager.

The first day's sessions were devoted to a discussion of the evolution of the personnel job and its growing importance as a management function. The principles of personnel administration were considered in detail, and the need for reference to the company's statement of principles in daily activities was stressed. This statement of principles, which is a series of guideposts in the company's personnel administration, is reproduced with the permission of the General Foods Corporation. Entitled "Employee Relations in General Foods," it was first issued in 1937. The second edition, in 1941, was revised on the basis of four years of experience.

Purpose

In order to improve mutual understanding and to increase the effectiveness of the organization, the following statement of principles of personnel administration and employee relations is addressed to the entire personnel of General Foods Corporation—employees, supervisors, managers, and operating executives—in all departments, divisions, and subsidiaries in the United States and Canada.

Organization

Organization charts are furnished to help everyone in the organization, regardless of position, to know what his job is, to whom he is responsible, and the proper channels of communication.

Good organization requires:

1. That responsibilities should always be coupled with corresponding authority—and that no change should be made in the scope or responsibilities of a position without a definite understanding to that effect on the part of all concerned;

2. That no person in the organization should be given directions from more than one source unless he holds more than one position;

3. That directions should never be given to any employee over the head of an immediate supervisor;

4. That criticism of an employee should be made privately, and in no case should an employee be criticized in the presence of employees of equal or lower position;

5. That no difference of opinion between supervisors or employees as to authority or responsibility should be considered too trivial for prompt and painstaking adjustment; and

6. That promotions, individual wage or salary changes, and disciplinary actions should be communicated, after proper approvals, only by the supervisor immediately superior to the individual directly affected.

Administration

Consultative Supervision. Because it places emphasis upon respect for the personality and human dignity of each individual employee and allows maximum development of his natural capacity, the management believes that the most enduring—and in the long run most satisfactory—personnel relations will be attained by means of consultation and explanation—up and down the organization—through the channels of communication shown on organization charts. This means:

1. That employees should be encouraged to express their views on matters affecting their jobs and interests;

2. That consideration should be given to their views before reaching decisions materially affecting their jobs and interests;

3. That all those who direct the work of others should see to it in the daily operation of our business that no one is ignored on those things about which he thinks he has a right to be consulted; and

4. That all matters affecting employee relations should be fully and freely explained.

Employees are assured there will be no discrimination as a result of their exercising their rights under this method of administration.

Some examples of consultative supervision in General Foods are: salesmen's assignment meetings, employees' committees, departmental and plant staff meetings, foremen's discussion groups, conferences for clearance of operating plans, supervisory coordination meetings, and

the many instances on the job when exchange of ideas determines the course of action.

Collective Bargaining

Employees are free, without restraint, to exercise their right under the National Labor Relations Act or similar applicable laws to choose representatives for the purpose of bargaining collectively with the management regarding wages, hours, and working conditions. They are not limited in their choice of representatives. They may choose their fellow employees, or any of the many workers' organizations or labor unions. Among our many divisions and subsidiaries are examples of each of those kinds of representation. In each case where the chosen representative has desired it, a working agreement covering wages, hours, and working conditions has been entered into for the local unit concerned.

Grievances

Supervisors should try to remove—promptly—sources of dissatisfaction! Where grievance procedure is not established by working agreement, misunderstandings or grievances regarding conditions of employment should be handled by the employee concerned through his immediate supervisor. Failing prompt and satisfactory adjustment, the case should be submitted to the local personnel manager, and, if necessary, by either the employee or local management to the director of industrial relations of the corporation for review and settlement in consultation with executive officers.

Employment

The management intends to maintain the following employment policies:

1. No employee of General Foods and no one seeking employment shall be required as a condition of employment, transfer, promotion, or retention in service to join or to refrain from joining any organization;

2. There shall be no discrimination against employees, or those seeking employment because of membership or nonmembership in any law-abiding organization; and

3. Selection of applicants for employment will be made on the basis of such factors as character, ability, skill, experience, training, intelligence, and physical fitness. Promotion, demotion, transfer, layoff, and retention in, or termination of, service will be made on the basis of length of service, merit, and competence.

The foregoing employment policies cannot be maintained in a closed shop or any form of it, such as a preferential or union shop.

4. Adequate personnel and service records will be maintained for every employee in order that employment experience data may always be available.

5. When vacancies occur, employees will be given first consideration. If an employee is found to be unsuited for the duties to which he is assigned, an effort will be made to place him at work for which he is better suited.

6. To aid in the placement of applicants in occupations for which they are best suited and to maintain high standards of health and physical fitness, a medical examination is required for all new employees. A similar service is given to all present employees, and annual reexaminations also are required—all at company expense.

7. No person under sixteen years of age shall be employed. No person under eighteen years of age shall be employed in a hazardous occupation.

Hours of Work

Schedules of regular daily and weekly hours of employment shall be maintained in accordance with the Fair Labor Standards Act of 1938 or similar applicable laws. Payment for overtime shall be maintained in accordance with those laws.

Wages

1. General Foods intends to pay wages in each of its plants and offices as good as prevail for similar work under similar conditions in the community where such plant or office is located. "Wages" means the amount of pay (excluding overtime pay) received on payday. "Prevail" means the average earnings of labor in the particular community. "Similar work" means work requiring equal ability, involving equal responsibility, and performed under comparable physical conditions. "Similar conditions" means employment in a comparable industry by an employer offering comparable treatment of employees, hours of work per week, and continuity of employment.

The practical application of this wage policy to our various operations presents many difficult technical problems due to differences in local conditions. We have set forth these problems and their solutions in a standard practice procedure for wage surveys. It is available to any employee who is interested.

2. Wage and salary rates are based on relative differences in job requirements as measured by skill, difficulty, environment, responsibility, and importance. To assure the maintenance of sound wage and salary schedules, a procedure for job description and rating will be applied periodically.

3. Adjustments in wages and salaries will be independent of such dates as anniversary of employment, the first of the year, and the middle of the year.

Working Conditions

1. It is the policy of the management to create and maintain working conditions which will make our offices and factories good places to work, and to provide personal conveniences—including locker rooms, washrooms and toilet facilities—which will appeal to the self-respect of employees.

2. The policies and practices with respect to accident prevention principles, safety organization, and medical service are set forth in standard practice procedures which make clear the desire of the management to maintain safe working conditions, to reduce accidents, and to aid in the general well-being of employees.

Benefit Plans

General Foods has put into effect cooperative retirement and insurance plans making provision for old age and death. Provision also is made—entirely at company expense—for the payment of benefits in cases of nonoccupational sickness and injury, termination, and for vacations with pay—all in accordance with the terms of current plans.

Conclusion

1. The officers of General Foods want to make clear that, in addition to other responsibilities. each operating executive, manager, and supervisor who directs the work of others will be held responsible for the whole-hearted and effective execution of the principles of personnel administration and employee relations set forth here. We want, and need, the cooperation, interest and loyalty of all employees. We want this business to be conducted in an efficient manner and in a spirit of friendliness to the mutual advantage of employees, management, stockholders, and consumers.

2. It is a function of the industrial relations department to aid in the attainment of these principles. In each division and subsidiary of the corporation someone is designated to assist the local management in the execution of procedures for personnel administration and in the maintenance of mutually satisfactory employer-employee relations.

3. This is a statement of the broad principles for which the management of General Foods stands. The wide diversity of conditions under which our numerous units operate necessarily requires that local procedures will vary from unit to unit. But in every instance such local procedures must conform to the foregoing corporation policy.

C. M. Chester, *Chairman* — Clarence Francis, *President*

New York, N. Y.
May, 19, 1941

A prominent place in the Institute was devoted to problems of application of the company's personnel code. A full day was devoted to informative presentations by staff specialists on specialized personnel techniques and services: employee evaluation, job evaluation, the power of training in the management job, and the regularization of employment. The program also included a discussion of methods of handling the job of plant personnel manager, and a consideration of a plan for the appraisal of plant personnel administration.

METHODS OF PRESENTATION

A variety of methods of presentation were used both as a means of sustaining interest and attention and of clarifying the subject matter. Talks were usually reinforced by projected slides or "flip-flop" charts. In another instance a sound-slide film was used to introduce a subject. A sample conference was conducted to illustrate a method to be used with supervisory groups in promoting an understanding and adherence to the principles of personnel administration.

The case method was applied to the discussion of problems of application of personnel policy. Prior to the holding of the institute, case situations were obtained from the company's personnel managers. Examples are the following case situations:

"A dinner meeting to which all employees of the plant were invited was held at 6:00 p.m. on a Wednesday. The second shift of porters who regularly work from 5:00 p.m. to 1:30 a.m. (eight hours exclusive of a meal period of one half hour) planned to attend this dinner, but asked that their take-home pay be made up to them."

"Question: What would be the equitable way of paying them, from both the company standpoint and that of employee morale?"

"An employee earns $50 weekly in a range of $50 to $70. A merit increase of $5 was granted, resulting in a new current salary of $55. Shortly thereafter the job was reevaluated and enjoys a range of $60 to $80."

"Question: What adjustment should be made in the employee's salary?"

"An hourly rated employee had been ill for two weeks with flu, during which time he received nonoccupational accident and sickness benefits after the regular waiting period. He returned to work for one day; but he was unable to work again for another ten days, having had a recurrence of his original illness."

"Question: Must he wait another five calendar days before he receives nonoccupational accident and sickness benefits?"

"An employee left a pair of eye glasses on a bench in the dressing room. The janitor assigned to clean the dressing room knocked them off and broke them."

"Question: Should the company pay for repairing the glasses?"

The time schedule of the program provided ample opportunity for questions and informal discussion. A "no-holds-barred" attitude toward questions prevailed. It was natural, therefore, that questions were raised to which there were no immediate answers, and which required study.

Although other meetings of personnel men in the corporation have been held in the past, they have been usually limited to regional groups, and to a discussion of a more limited subject matter. This institute, in addition to providing an opportunity for the discussion of a broad range of common personnel problems, also furnished an occasion for a dinner meeting, at which the company's president, Austin Iglehart, introduced the chairman of the board, Clarence Francis, the speaker of the evening. It was well attended by top executives of the company as well as its personnel group.

Two facts are indicative of the measure of success the institute enjoyed. One is the enthusiastic response from the personnel men, many of whom volunteered specific ways in which they received help. The second is that this first institute, which was a pioneering effort, will become an annual event at General Foods.

William W. Mussmann
Management Research Division

Canadian Vacation and Holiday Practices[1]

CANADIAN companies will follow much the same pattern in vacation and holiday practices as in 1946, according to a survey recently conducted by THE CONFERENCE BOARD. Most of the changes reported have been made by companies which have had to conform with new provincial legislation[2] and supplementary orders requiring annual vacations with pay for workers in most industries.

Table 1: Maximum Paid Vacation Granted Wage Earners

Minimum Service in Years	Maximum Paid Vacation Allowance					Total No. of Companies	% of Total
	1 Week	2 Weeks	14 Days	3 Weeks	1 Month		
None specified	2	..	..	..	..	2	4.9
1	5	4*a*	..	..	..	9*a*	22.0
2	..	1	..	..	..	1	2.4
3	..	2	..	..	..	2	4.9
5	..	18*b*	..	..	..	18*b*	43.9
7	..	1	..	..	..	1	2.4
10	..	1	..	..	..	1	2.4
14	..	..	1	..	..	1	2.4
20	..	..	..	1*c*	..	1*c*	2.4
21	..	..	..	1	..	1	2.4
25	..	..	..	3	..	3	7.3
30	..	..	..	..	1	1	2.4
Total	7	27	1	5	1	41	..
Per Cent	17.1	65.9	2.4	12.2	2.4	..	100.0

*a*One company: To qualify for second week's vacation pay, employee must work four Saturdays during the year.
*b*One company: If less than 200 days worked during vacation year, receive two weeks with pay at 4% of actual earnings. Otherwise receive pay at 80 hours times regular hourly rate.
*c*One company: Male employees only. Females receive three weeks after 15 years of service. Also have privilege of one additional week if vacation is taken from November through April.

Last year's analysis covered more than 132,000 employees in fifty-one representative Canadian companies.[3] This year, replies were received from forty-six of these companies located in British Columbia, Manitoba, New Brunswick, Ontario and Quebec. The majority of the companies state that wage earners must be employed a full year before they can qualify for a paid vacation, although at least two of the provinces in which most of the reporting companies are located—Quebec and Ontario—require that a company give employees with less than one year of service a prorated vacation allowance. Out of forty-one companies, thirty-seven allow wage earners a one-week paid vacation after one year of service. In four companies the minimum paid vacation allowance for wage earners is two weeks after one year. As shown in Table 1, in all but seven companies the maximum paid vacation allowance is two weeks or more. There is a significant trend toward lowering the eligibility requirement for the two-week vacation, while several more companies have added provisions granting employees with long service additional time off with pay.

Vacation policies traditionally have been more liberal for salaried employees. The pattern in the majority of the companies is one week's paid vacation after six months of service, two weeks after one year, with about one out of every five companies granting vacations of three weeks or more (see Table 4).

COMPUTATION OF VACATION PAY

Practically all the reporting companies pay salaried persons on the basis of their regular weekly salary, although a few companies which pay wage earners on the basis of a percentage of annual earnings have extended this policy to salaried workers. Forty companies furnished information on the various methods of computing wage earners' weekly vacation pay (see Table 2).

Table 2: Methods of Computing Vacation Pay for Wage Earners

Method	No. of Companies
2% of annual earnings	11
2% of total annual earnings, including incentive, overtime and night shift differential	1
2% of annual earnings, less overtime and vacation pay	1
2% of annual earnings or amount equivalent to regular work week times regular hourly day rate of pay, whichever is greater	2
2% of total annual earnings, percentage applying to first week only	2
40 times regular hourly rate, excluding overtime and off-shift premiums (if under 200 days worked, 2% of earnings	1
1.92% of annual earnings	1
48 hours times base rate	10
48 times hourly base rate plus incentive and overtime	1
Average weekly earnings for previous 10 weeks, including night-shift differential, overtime and incentive earnings	1
Average hourly rate over previous 12 months	1
Average of current gross earnings	1
Number of holiday shifts times payroll rate, excluding bonus earnings	1
Miscellaneous: "current rate," "regular pay," "same as if at work," etc.	6

PAY FOR PUBLIC HOLIDAYS NOT WORKED

A live question in collective-bargaining negotiations in both the United States and Canada is whether to

[1]Paid vacation and holiday policies of United States companies in 1947 appeared in the April, 1947, issue of *The Management Record.*

[2]Statutory provision for annual paid holidays has been made by the following provinces: Alberta, British Columbia, Manitoba, Ontario, Quebec, Saskatchewan.

[3]*Studies in Personnel Policy*, No. 75, "Vacation and Holiday Practices"

TABLE 3: HOLIDAYS OBSERVED, WITH AND WITHOUT PAY

Holiday Observed	Wage Earners						Salaried Workers	
	Total Companies Observing	% of 42 Companies	With Pay		Without Pay		With Pay	
			No. of Companies	%	No. of Companies	%	No. of Companies	% of 46 Companies
New Year's Day	40	95.2	15	37.5	25	62.5	41	89.1
Good Friday	33*a*	78.6	10	30.3	23*a*	69.7	35	76.1
Victoria Day	13*b*	31.0	4	30.8	9*b*	69.2	19*b*	41.3
Dominion Day	37	88.1	13	35.1	24	64.9	39	84.8
Labor Day	40	95.2	15	37.5	25	62.5	41	89.1
Thanksgiving Day	33	78.6	9	27.3	24	72.7	36	78.3
Christmas Day	41	97.6	19	46.3	22	53.7	42	91.3
Miscellaneous:								
Epiphany	2	4.8	....	....	2	100.0	....	....
Easter Monday	....	....	....	....	....	....	2	4.3
Ascension Day	1	2.4	....	....	1	100.0	....	....
King's Birthday	....	....	....	....	....	....	1	2.2
St. Jean-Baptiste	8*cd*	19.0	2*cd*	25.0	6	75.0	7*cd*	15.2
Civic Holiday	12*a*	28.6	3*a*	25.0	9	75.0	13*a*	28.3
All Saints' Day	2	4.8	....	....	2	100.0	....	....
Armistice Day	1	2.4	....	....	1	100.0	2	4.3
Immaculate Conception Day	2	4.8	....	....	2	100.0	....	....
Boxing Day	3*e*	7.1	1*e*	33.3	2	66.7	5*f*	10.9
Company Picnic	1	2.4	1	100.0	....	....	1	2.2

*a*One company: or Easter Monday.
*b*One company: in Ontario plants only.
*c*One company: alternate with Dominion Day.
*d*One company: in Quebec plants only.
*e*One company: "At times."
*f*One company: only in provinces where proclaimed.

pay production workers for legal and other holidays observed by the company. Employees paid on other than an hourly or a piecework basis have generally received holidays off without loss of income and only within the last few years have many companies extended this policy to wage earners. This year all the cooperating companies in Canada allow salaried personnel holidays off with pay, the majority granting from six to ten paid holidays a year. Some liberalization has been made this year in the case of wage earners. Slightly less than one half of the companies allow wage earners some holidays off with pay, the majority paying for six holidays or less. Company practices in observing holidays with and without pay are shown in tables 3 and 5.

Table 4: Maximum Paid Vacation Granted Salaried Workers

Minimum Service Requirement	Maximum Paid Vacation Allowance				Total No. of Companies	% of Total
	1 Week	2 Weeks	3 Weeks	1 Month		
None required	..	2	..	..	2	4.4
Hired prior:						
12/1/46	..	1	..	..	1	2.2
1/1/47	..	1	..	..	1	2.2
6 months	..	2	..	..	2	4.4
1 year	1	29*a*	2	..	32	71.1
15 years	..	..	1	..	1	2.2
20 years	..	..	2*bc*	..	2	4.4
21 years	..	..	1	..	1	2.2
25 years	..	..	2	..	2	4.4
30 years	..	..	..	1	1	2.2
Total	1	35	8	1	45	..
Per Cent	2.2	77.8	17.8	2.2	..	100.0

*a*One company: Summer only; winter, 3 weeks.
*b*One company: Male employees only. Females receive 3 weeks after fifteen years of service; also have privilege of one additional week if vacation taken from November through April.
*c*One company: Four weeks if vacation is taken from November through April.

Table 5: Paid Holidays Not Worked

Practice	Wage Earners		Salaried Workers	
	No. of Companies	%	No. of Companies	%
No Paid Holidays	22	52.4	0	...
Grant Paid Holidays	20	47.6	46	100.0
Total	42	100.0	46	100.0
Number of Paid Holidays Granted:				
1	1	5.0	...	...
2	3	15.0	...	...
3	5	25.0	2	4.3
4	2	10.0	3	6.5
5	...	...	2	4.3
6	4*a*	20.0	10*a*	21.7
7	...	...	8*c*	17.4
8	4*b*	20.0	14*d*	30.4
9	1	5.0	1	2.2
10	...	...	2	4.3
Not specified	...	...	4*e*	8.7

*a*One company: Also any other days legally declared holidays (bank).
*b*One company: At one-half pay if wage earner works day preceding and following holiday.
*c*One company: Seven in Ontario; six in Quebec
*d*One company: Sometimes also observes January 2
*e*One company: All bank holidays (Quebec)

LYLE LODWICK
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Trends in Collective Bargaining

Labor Briefs

A summary of collective-bargaining efforts for the past two months shows little advance in organizing activity and an increase in union losses of NLRB elections. Organized labor has been directing practically all its effort toward preventing passage of legislation that would weaken labor's bargaining position.

* * *

A recent highlight has been the termination of a collective-bargaining agreement between the Ford Motor Company and the Foremen's Association of America. Reporting on it, the company declares that, after three years of collective bargaining with the FAA, the results were the opposite of what it had hoped for and that "rather than exerting its efforts to bring foremen into closer relationship with management, your association has worked in the opposite direction." The Ford agreement was the first to be negotiated, and its termination may affect the prestige of the FAA. However, the FAA is said to be confident that it will obtain a renewal of its contract with the Ford River Rouge plants.

* * *

Friction between the southern and northern coal operators in the bituminous coal situation is responsible, say Washington observers, for the failure of government to turn the mines back to their private owners. The friction is said to be over the industry-wide welfare fund, negotiated by Secretary of the Interior Krug and John L. Lewis in May, 1946. The Southern Coal Operators Association does not want to recognize its provisions, it is reported. Nevertheless, a Welfare Fund Department of the United Mine Workers has been established under the direction of Robert Kaplan, former research director for the catch-all District 50 of the UMWA.

* * *

Communist members of the International Ladies' Garment Workers' Union (AFL) who were expelled from the union sued the union and its president, David Dubinsky, for reinstatement. The Supreme Court of New York held that Local 10 had been justified in expelling the members for violation of union laws.

* * *

Henry Ford, II, reports that unauthorized work stoppages have in the past twelve months dropped "60% from the preceding twelve-month period and 82% from the average during the past five years." Mr. Ford says that workers should have the right to strike, but that there should be equality for labor and management under the law. He thinks that it would be a fine thing to keep government entirely out of labor disputes.

Railroad Labor Strife in Offing

Dissatisfaction still prevails over the strike settlement of May, 1946, among members of the Brotherhood of Locomotive Engineers and the Brotherhood of Railway Trainmen. Although the members received wage increases, changes which they sought in the work rules were not granted. The work-rule problem has been acute among railroad workers for years.

One of the important changes proposed by the BRT is that of equalizing hours and mileage of enginemen and trainmen. "A rule requiring a passenger trainman to run 150 miles, or seven and a half hours, to establish a basic day," says A. F. Whitney, President of the Brotherhood of Railroad Trainmen, in an article appearing in *The Railroad Trainman*, "while enginemen on the same train, under identical conditions, establish their basic day in 100 miles, or five hours, is discriminatory and unjust."

Under the union proposals, the pay received by the engineman and fireman would be approximately the same for the same minimum five-hour day. Similar equality would be established for the passenger conductor and the trainman. The brotherhood claims that now "passenger trainmen are required to run up to 50% more miles, or work up to 50% more hours, to receive approximately the same compensation per month as enginemen." Weights of locomotives also play an important role in railroad work rules and in employee rate determination. The railroads claim that to change these and other work rules would create too high an operating cost. While the brotherhoods are not in complete agreement among themselves as to the nature and extent of the changes desired, they are united in a campaign to inform the public of their reasons for demanding changes. According to Mr. Whitney, the railroads could meet the increased costs the changes would involve. The carriers' side of the story is treated in an editorial in the *M-K-T Employees' Magazine* which asserts that wages have gone up 80% and fuel and supply costs, and taxes 50% in the last twenty-five years. At the same time, freight and passenger rates have gone down.

Labor, official publication of fifteen of the railroad unions, declares that "representatives of 178 non-operating unions, speaking for over a million workers on the railroads, were 'set to go' . . . on negotiations for a twenty-cent an hour wage increase." These brotherhoods are thus emphasizing their interest in obtaining straight wage increases. The other brotherhoods, while wanting raises, put the emphasis on revamping the work rules, since "unsatisfactory working conditions can offset wage increases."

The Railroad Retirement System is a touchy subject within the brotherhoods. The railroadmen are vehement in wanting the retirement provisions left untouched.

Legislative Trends and Unions

Trade unions are lobbying intensively in state capitals and in Washington against the labor bills that have been introduced aimed at offsetting the legislation passed during the Roosevelt administrations. Many unions are appealing to the United States Supreme Court to have state legislation barring the closed shop outlawed. Up to April, 1947, thirteen states had passed anticlosed-shop laws. Since many unions are interstate in character, there is the possibility that the laws will be declared unconstitutional.

One result of current Congressional activity has been to bring the AFL and CIO together in a unity conference. Although organic unity was not effected, they agreed to make their programs on legislative matters complementary. Leaders of the two federations seem more optimistic than at any time in the past that organic unity will come in the not too distant future. There may be more hope than promise, however, in the actual situation.

Company Charges for Dues Checkoff

A large southern company which has a collective-bargaining agreement with an American Federation of Labor affiliate has agreed to check off dues but is protected against any disputes which may arise in the process. A provision enables the company to keep 5% of all dues as its fee for collecting them for the union.

The agreement, which gives the union a maintenance-of-membership type of union security clause, states that "in the interest of promoting harmonious relationship, the company approves of its employees becoming and remaining members of the union."

Work Clothes Supplied by Company

A food company has agreed to supply its workers, who are members of the Amalgamated Meat Cutters and Butcher Workmen of North America (AFL), with uniforms and head covering "where required and when available." The company agrees that they will launder such equipment and all uniforms shall remain the property of the company. Employees shall be held accountable for the "reasonable use" of the uniforms, and are to pay for them or turn them in when they leave the company.

The company is also to furnish, when needed, rubber boots, rubber gloves, rubber aprons, knives, uniforms or tools (except tools for the maintenance and meat department employees). Items not returned when an employee leaves the company will be chargeable at cost. Stools will be provided for the convenience of women employees wherever practicable.

Who Is a Professional?

Office and professional workers' unions have been active in organizing drives in and around New York City. A strike situation developed in a publishing house after the union had lost an NLRB election. During the strike the election was declared void by the NLRB because of a speech that had been made by the employer just before the NLRB election. It is claimed by some that the election was lost because certain professional workers were included in the bargaining unit. Yet, it was obvious before the election that the union was under the impression that it would swing enough of these employees' votes to win the election.

In Bill No. 360, which was introduced by Senator Ball on January 27, 1947, and referred to the Committee on Labor and Public Welfare, the term "professional worker" is defined as

> "Any employee engaged in work (i) predominantly intellectual and varied in character as opposed to routine mental, manual, mechanical, or physical work; (ii) involving the consistent exercise of discretion and judgment in its performance; (iii) of such a character that the output produced or the result accomplished cannot be standardized in relation to a given period of time; (iv) requiring knowledge of an advanced type in a field of science or learning customarily acquired by a prolonged course of specialized intellectual construction and study, as distinguished from a general academic education or from an apprenticeship or from training in the performance of routine mental, manual, or physical processes; and (v) of a character which, under state or local law, would generally require licensing, certification, or registration of the practitioner if he made such services available to the public; or
>
> "(B) any employee, who (i) has completed the courses of specialized intellectual instruction and study described in clause (iv) of paragraph (a), and (ii) is performing related work under the supervision of a professional person to qualify himself to become a professional employee as defined in paragraph (a)."

Abraham A. Desser
Management Research Division

Briefs on Personnel Practices

Putting Hourly Workers on a Weekly Payroll

An interesting example of providing wage earners with greater security of employment is found in the salary plan of The Paraffine Companies, Inc., Emeryville, California. Under its arrangement, employees covered by the union agreement are transferred from the hourly to the weekly payroll upon completion of five consecutive years of service. The annual base salary for such employees is determined by multiplying the individual's hourly rate by 2,080 hours (40 hours times 52 weeks). This total is paid out in twenty-six equal instalments (biweekly payroll). In addition these employees receive overtime payments and if they perform work which carries a higher rate, they receive the rate of the higher paid job.

Employees on this salary basis are entitled to sick leave and holidays with pay. Employees absent because of illness must present satisfactory evidence from their physicians or the company's medical department. Unexcused absences are not tolerated, and all time lost through unauthorized absences is deducted from the base pay.

Salaried employees covered by the agreement are given two weeks' notice before layoff, but employees in this group cannot be laid off before the services of all hourly wage earners covered by the agreement have been terminated.

New Employee Stock Offer Plan

The American Telephone and Telegraph Company has at various times offered stock to its employees. The latest offering, which has been approved by the stockholders, provides for the sale of capital stock to employees up to a maximum of 2,800,000 shares. Payment for shares is to be made on an instalment basis at the rate of $5 a month a share either by payroll deductions or by direct cash payments. All regular employees of the parent company and its subsidiaries who have completed six months or more of service are entitled to purchase this stock at $150 a share. The offering to the individual employee is limited to one share for each full $500 of annual basic pay with a maximum limitation of fifty shares. Approximately 500,000 employees are eligible to purchase stock.

If stock market quotations on the company's stock drop, the buying price of the employees' stock is reduced to twenty points below the market price, but not to less than $100 a share. The payments for each share are completed in the month in which the amount accumulated in the individual's account equals $150 or twenty points below the average market price for that month (whichever is lower).

An employee may cancel his subscription and receive all the amounts credited to his account in cash or receive as many shares of stock as the money to his account will purchase on the same basis as described in the preceding paragraph.

Ford Savings Plan Discontinued

The Ford Motor Company announced that on January 31, 1947, its investment savings plan would be liquidated. Started in 1920 to promote employee thrift, the plan had at its peak more than 32,000 participants and at one time more than $25 million invested. In the beginning, the company paid a basic 6% return on the investment, but in 1933 the rate was reduced to 4½%. In addition, the directors voted extra interest ranging from 0.5% in 1943, 1944 and 1945 to 10% in 1925 and 1926.

The funds deposited were used in the company's business and it was believed that the Securities and Exchange Commission might object to this form of savings. In consequence, the plan was closed to further contributions in 1941.

It was further decided in 1947 that the existing regulations of the SEC made it inadvisable to continue the plan, and the company decided to discontinue interest on the investments now held as of January 31, 1947. Participants were asked to present their investment certificate books for payment in full. F. B. B.

Incentive Plan for Inventors

Under a new program at the Armstrong Cork Company, employees responsible for inventions leading to patent applications will receive special awards.

One of the chief purposes of the new policy is to create a greater awareness of the importance of reporting all new ideas to the legal department for appraisal as to patent possibilities.

The plan is divided into two parts to recognize the preliminary work involved in furnishing information for the preparation and filing of the application and also the additional effort required in many cases in the solicitation of a patent. The employee-inventor will be paid $25 at the time the application for a patent is filed and $100 when the patent is issued. These

rewards will be paid to each co-inventor as well as to sole inventors according to the policies established for the plan.

With this added reward, it is believed, the pressure of other duties will not lead to the neglect of patentable ideas, and the inventor will be eager to help in every way possible to secure patent protection on the invention and subsequent patentable improvements on it. R. A. H.

Completed Courses Bring Refunds

The RCA Victor Division of the Radio Corporation of America has revised its tuition refund plan so that outside courses may be taken without expense to the employee. Under the former plan 90% of the tuition cost was refunded for a grade of A, 60% for B, and 40% for C.

Under the new plan, employees may, with the approval of their supervisor and the training section, borrow the tuition from the company, paying the amount back through payroll deductions. Employees are permitted to enroll at approved institutions to take courses within the scope of the company's activities. When the course is completed satisfactorily, the company refunds the full amount of tuition. The total amount of refund is limited to $50 a semester.

Management Checks the Score

Studebaker management gathered together recently to discuss the company's annual report. Harold S. Vance, Chairman of the Board, explained the record for 1946. President Paul G. Hoffman discussed the outlook for the future. Two meetings were held in South Bend, and one in Los Angeles.

This One Is for Management

The Pullman-Standard Car Manufacturing Company publishes a weekly *Management Newsletter* as a means of keeping management currently informed. Once a month an advance proof of the company's national advertising is also distributed with the newsletter. W. W. M.

Explains Steps To Cut Costs

Anticipating a competitive period for sales, the Liquid Carbonic Corporation believes that the cost of production can be lowered by improving efficiency.

In a recent article in its company publication, employees are told about the formation of three new departments in order to reduce costs in the Machinery Division. They are Tool Design, Production, and Standards and Methods. Emphasis in the article is on the third department. The article analyzes methods used in establishing the piece rates system and shows the employees that they and the company earn more per hour at greater production. R. A. H.

Union Stewards Go to School

The United Steelworkers of America, which began an educational program for union officers and stewards last summer at Penn State, is planning an expanded program of one-week institutes for this summer. Schools will be conducted at the University of Illinois, Penn State, Antioch, University of Wisconsin, University of Indiana and University of New Hampshire. Among the subjects to be included in the program are history of labor, problems of collective bargaining, job evaluation and time study. W. W. M.

Foster Campaigns against Cancer

The Addressograph-Multigraph Corporation and The Texas Company are two of several organizations which recently published information about cancer in their employee publications. This method of acquainting employees with pertinent facts about symptoms and growth of cancer has become increasingly popular in recent months.

Eye Protectors To Please the Eye

The Safety Department of the Scoville Manufacturing Company offers about two dozen types of eye protectors to its employees without cost. The department urges individual fittings to assure the wearer comfort as well as eye safety on the job. E. M. S.

Pool Vacation Experiences

To help employees in planning their vacations, the Ohio Bell Telephone Company recently prepared a vacation questionnaire to gather information for an exchange of vacation experiences among employees. Sent out along with a return envelope in the monthly employee magazine, the questionnaire solicits information from each employee on past vacations he has taken that he would recommend to other employees.

Points to be covered include when and where the vacation was spent; the kind and cost of accommodations, meals and transportation; travel time and recommended routes; types of entertainment and recreation available; points of interest; kind of clothing sug gested; where reservations can be obtained, and the approximate total cost of the vacation. The letter accompanying the questionnaire states that if the survey provides sufficient data, the information will be made available to all employees. L. L.

Labor Press Highlights[1]

Big Business Means Big Unions

By classifying a large labor union as a monopoloy, certain congressmen seek to arouse the inherent prejudice of Americans against monopoly, states an editorial in *The International Teamster* (IBTCWHA-AFL). "When the United States was a land of little business, it was also a land of little unions. When business grew big and powerful, labor had to unite to become strong enough to bargain with it. . . . Employers maintain their right to organize and bargain collectively for an entire industry. As long as that is legal, it is also legal for working men and women to do the same thing."

Jobs for the Handicapped

"The unions affiliated with the American Federation of Labor are determined that the handicapped shall be reemployed in respectable jobs," states George Meany in the *American Federationist*. The answer to placing these handicapped people "is union-management cooperation through collective bargaining. The key to cooperation is proper placement. . . . Of the 6,250,000 permanently disabled persons in the United States, it is estimated that all but 3% could be rehabilitated and properly placed in useful work. . . . The handicapped don't seek special privileges. All they ask is an equal opportunity for gainful employment suited to their abilities."

ILGWU Denies Charge of Trade Restraint

Hearings were held before the Federal Trade Commission on charges of a conspiracy of a local of the International Ladies' Garment Workers' Union and industry factors to commit certain actions in restraint of trade. As to the assertion that the union is strongly concerned with the industry's profits and prosperity, President Dubinsky declared that while "all factors in industry, including the union, should be concerned with the solvency of the firms by whom people are employed, the union is not a party to any profit-promotion scheme or arrangement. . . . Many things go into the growth of profit—including ability to buy materials, sound manufacturing, efficient production and economic distribution. . . . The union is in no way involved in such activities, which belong exclusively to management." *Justice* (ILGWU-AFL).

Increase in AFL Teachers' Locals

The American Federation of Teachers (AFL) has chartered seventy new locals since the start of the current school year. According to the *American Federation of Labor Weekly News Service*, this is the largest number chartered in any comparable period. Irwin R. Kuengli, AFT national secretary, declared that the campaign of the National Education Association to check the rapid progress of the American Federation of Teachers "is serving as a boomerang and accelerating the organization of teachers."

British Coal Miners under Nationalization

Important features of a new agreement reached by miners and the National Coal Board of Great Britain include a five-day week and a plan designed to insure that this does not lead to any diminution in output. The men will normally receive six days' pay for five shifts, but will receive pay for the sixth day only if they work five shifts during the week. Surface workers will have a 42.5-hour work week in five shifts, instead of the present week, which is usually about forty-eight hours. "The agreement was reached by the normal methods of collective bargaining and . . . under public ownership, the miners are in the same position as workers in private undertakings as regards the right to strike. There is elaborate conciliation machinery." *Labor and Industry in Britain* (British Information Service.)

SIU Fights Transfer of Ships

The sale of 191 ships to foreign interests was halted by the Maritime Commission in an effort to prevent complete control by foreign nations of world tonnage and world trade routes, according to *West Coast Sailors* (Seafarers' International Union—AFL). "The Seafarers have been the spearhead in the drive to prevent the disposal of American tonnage to foreign operators . . . enlisting the aid of the powerful AFL Maritime Trades Department and the International Transport Workers Federation." A sharply worded resolution calling on the Maritime Commission to put an immediate halt to such transactions was adopted.

Closed Shop Amendment Defeated in Colorado

The Colorado State Senate's resolution to submit to the people a constitutional amendment banning the closed shop failed by one vote, states *Trainman News* (Railroad Unions —independent). "Senator Arthur A. Brooks (R) led the fight against the bill, declaring that it was conceived in anger solely for the purpose of breaking unions." He stated that "even if passed by the people, the proposal could not modify, replace or supersede the Wagner Act."

UMWA Makes Payments from Welfare Fund

Death benefits of $1,000 will go out, within the next month, to the families or other beneficiaries of UMW members in soft coal employment. The families of the miners who lost their lives in the Centralia, Illinois, disaster will be included in this benefit. According to *District 50 News*, John L. Lewis declared that the union would not sign an agreement with the operators unless it provided for the continuance of such a fund.

Robert Kaplan, former research director of District 50, is now associated with the administration of the UMW welfare fund.

ELAINE P. SILVERMAN
Management Research Division

[1]From the April labor press.

SIGNIFICANT LABOR STATISTICS

Source: THE CONFERENCE BOARD, unless otherwise indicated

Item	Unit	1947				1946		Year Previous	Percentage Change	
		Mar.	Feb.	Jan.	Dec.	Nov.	Oct.		Latest Month over Previous Month[1]	Latest Month over Year Previous
Clerical salary rates										
Billing machine operator	mode in dollars	....	....	....	....	....	38	....	....	....
Calculating machine or compt'ter operator	mode in dollars	....	....	....	....	....	35	....	....	....
Office boy or girl	mode in dollars	....	....	....	....	....	25	....	....	....
Stenographer	mode in dollars	....	....	....	....	....	35	....	....	....
Telephone switchboard operator	mode in dollars	....	....	....	....	....	46	....	....	....
Senior copy typist	mode in dollars	....	....	....	....	....	36	....	....	....
Consumers' Price Index										
Food	1923=100	152.3	....	....	r 149.3	....	....	113.8	+2.0	+33.8
Housing	1923=100	91.0	....	....	91.0	....	....	91.0	0	0
Clothing	1923=100	108.3	....	....	r 105.8	....	....	94.8	+2.4	+14.2
Men's	1923=100	124.5	....	....	r 121.0	....	....	104.2	+2.9	+19.5
Women's	1923=100	92.0	....	....	r 90.5	....	....	85.4	+1.7	+7.7
Fuel and light	1923=100	101.5	....	....	r 100.3	....	....	97.4	+1.2	+4.2
Electricity	1923=100	66.9	....	....	66.9	....	....	66.9	0	0
Gas	1923=100	94.5	....	....	94.5	....	....	94.5	0	0
Sundries	1923=100	126.9	....	....	r 125.9	....	....	115.9	+0.8	+9.5
All items	1923=100	124.9	....	....	r 123.2	....	....	106.7	+1.4	+17.1
Purchasing value of dollar	1923 dollars	.801	....	....	r .812	....	....	.937	-1.4	-14.5
All items (*BLS*)	1935-39=100	156.3	r 153.2	153.1	153.3	152.2	148.4	130.2	+2.0	+20.0
Strikes (*BLS*)										
Beginning in period	number	p 325	p 290	290	180	310	450	440	+12.1	-26.1
Workers involved	thousands	p 100.0	p 90.0	100.0	95.0	450.0	290.0	147.0	+11.1	-32.0
Total man days idle	thousands	p 850	p 1,230	1,250	3,065	4,750	4,500	13,800	-30.9	-93.8
Turnover rates in manufacturi'g (*BLS*)										
Separations	per 100 employees	....	p 4.4	4.9	4.5	4.9	6.3	6.3	-10.2	-30.2
Quits	per 100 employees	....	p 3.1	3.5	3.0	3.7	4.7	3.9	-11.4	-20.5
Miscellaneous	per 100 employees	....	p .1	.1	.1	.1	.2	.2	0	-50.0
Discharges	per 100 employees	....	p .4	.4	.4	.4	.4	.5	0	-20.0
Layoffs	per 100 employees	....	p .8	.9	1.0	.7	1.0	1.7	-11.1	-52.9
Accessions	per 100 employees	....	p 4.9	6.0	4.3	5.7	6.8	6.8	-18.3	-27.9
Wage Earners										
All manufacturing industries (*BLS*)										
Earnings, hourly	average in dollars	....	1.170	r 1.161	r 1.148	1.139	1.130	1.002	+0.8	+16.4
weekly	average in dollars	....	47.28	r 47.09	r 46.96	45.79	45.73	40.58	+0.4	+16.1
Hours per production worker	average per week	....	40.4	r 40.6	40.9	40.2	40.5	40.5	-0.4	-0.2
Twenty-five manufacturing industries										
Earnings, hourly	average in dollars	1.285	r 1.279	r 1.268	1.247	1.243	1.231	1.146	+0.5	+12.1
weekly	average in dollars	52.08	r 52.10	r 51.62	r 50.23	50.14	49.79	46.44	0	+12.1
Hours per production worker	average per week	40.6	40.8	40.8	40.4	40.4	40.4	40.7	-0.5	-0.2
Employment	1923=100	128.9	128.8	127.1	126.1	125.8	123.2	109.0	+0.1	+18.3
Total man hours	1923=100	106.3	106.8	105.4	103.5	103.3	101.1	90.1	-0.5	+18.0
Payrolls	1923=100	252.3	r 252.2	r 246.6	r 238.1	237.0	230.5	190.2	0	+32.6
Wage-rate increases	average per cent	7.0	10.6	8.6	7.9	7.3	8.0	14.4	....	....
Production workers affected	per cent	1.5	3.4	4.1	1.8	2.7	1.9	10.6	....	....
Manufacture and distribution of gas										
Earnings, hourly	average in dollars	....	....	1.205	....	....	a 1.126	1.086	+7.0	+11.0
weekly	average in dollars	....	....	53.33	....	....	a 47.13	48.77	+13.2	+9.4
Hours per wage earner	average per week	....	....	43.8	....	....	a 41.3	44.2	+6.1	-0.9
Generation and distribution of electricity										
Earnings, hourly	average in dollars	....	....	1.315	....	....	a 1.277	1.203	+3.0	+9.3
weekly	average in dollars	....	....	56.36	....	....	a 54.84	51.71	+2.8	+9.0
Hours per wage earner	average per week	....	....	42.1	....	....	a 42.4	42.1	-0.7	0
Class I railroads[2]										
Earnings, hourly	average in dollars	....	....	....	1.186	1.181	1.175	.994	+0.4	+19.3
weekly	average in dollars	....	....	....	56.77	57.37	59.42	49.93	-1.0	+13.7
"Real" weekly earnings	1923=100	....	....	....	155.4	159.3	166.9	157.1	-2.4	-1.1
Hours per wage earner	average per week	....	....	....	47.9	48.6	50.6	50.2	-1.4	-4.6
Agricultural wage rates per month[3] (*BAE*)	average in dollars	....	....	94.80	....	....	96.40	85.90	-1.7	+10.4
With board	average in dollars	....	....	88.40	....	....	91.40	80.20	-3.3	+10.2
Without board	average in dollars	....	....	106.00	....	....	104.00	95.30	+1.9	+11.2
New York City metro. area, seventeen manufacturing industries										
Earnings, hourly	average in dollars	1.332	1.331	1.303	1.293	1.286	1.257	1.164	+0.1	+14.4
weekly	average in dollars	55.14	54.84	53.81	53.92	52.73	51.54	47.61	+0.5	+15.8
Hours per production worker	average per week	41.4	41.2	41.3	41.7	41.0	41.0	40.9	+0.5	+1.2

[1]Changes in Consumers' Price Index and Agricultural Wage Rates are quarterly.
[2]Derived from Interstate Commerce Commission reports.
[3]As of first day of month.
aJune, 1946.
pPreliminary
rRevised

Payroll Statistics in Manufacturing

DURING the first quarter of 1947, hourly earnings of production workers in the twenty-five manufacturing industries included in THE CONFERENCE BOARD'S monthly survey continued to climb upward, attaining a new peak in each of the three months. Weekly earnings, employment, man hours, and payrolls all rose in January and February, and employment and payrolls increased slightly in March, when weekly earnings and man hours declined somewhat. Working hours showed little variation during these three months.

EARNINGS AND HOURS

The average hourly earnings of these production workers have risen each month for seventeen consecutive months and in fourteen of the seventeen reached new peak levels. As a result, the March, 1947, average of $1.285 was 15.7% above June, 1945, the highest point reached during the war years. Since working hours are now much shorter than during the war, with a consequent loss of premium overtime pay, the greater part, at least, of the rise in hourly earnings must be attributed to wage-rate increases. Reported increases in the first three months of this year averaged, for all workers in the twenty-five industries, 0.4% in January and February and 0.1% in March. Five industries reported increases amounting to more than 2.7% for all the workers in the industry.

Shifts in employment distribution have also contributed somewhat to the rise in hourly earnings since

EARNINGS, PRODUCTION WORKERS, DECEMBER, 1946-MARCH, 1947

NOTE: *Hourly earnings are not wage rates, because they include overtime and other monetary compensation*

INDUSTRY	Average Earnings in Dollars							
	Hourly				Weekly			
	Mar.	Feb.	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.
Agricultural implement	1.310	1.299	1.294	1.281	52.88	51.80	51.44	51.18
Automobile[1]	1.416	1.416	1.411	1.421	55.05	55.08	52.09	52.78r
Boot and shoe	.996	.991	.998	.999	39.14	39.50	39.66	39.07
Chemical	1.355	1.348	1.314	1.288	53.07	53.04	51.72	49.95
Rayon producing[2]	1.207	1.192	1.119	1.119	46.63	46.19	43.31	42.34
Cotton—North	1.080	1.078	1.059	1.012	45.45	45.87	45.02	42.92
Electrical manufacturing	1.289	1.280	1.283	1.285	52.56	51.52	52.46	52.59
Furniture[3]	1.255	1.257	1.236	1.228	52.69	53.16	51.82	51.32
Hosiery and knit goods	1.064	1.056	1.064	1.059	41.70	42.13	42.43	42.89
Iron and steel[4]	1.379	1.370	1.374	1.352	52.68	53.43	55.51	48.26
Leather tanning and finishing	1.217	1.205	1.189	1.182	51.66	51.64	51.62	51.02
Lumber and millwork	1.391	1.380	1.351	1.252	57.20	56.62	54.09	51.30
Meat packing	1.186	1.198	1.206	1.129r	50.23	56.25	58.72	52.32r
Paint and varnish	1.255	1.244	1.208	1.203	52.26	51.21	49.56	49.13
Paper and pulp	1.160	1.149	1.135	1.121	51.06	50.35	50.10	49.23
Paper products[5]	1.105	1.091	1.080	1.072	46.31	45.58	45.72	44.47
Printing—book and job	1.411	1.390	1.376	1.378	60.17	59.82	59.75	59.94
Printing—news and magazine	1.658	1.639	1.622	1.543r	68.46	67.47	66.37	61.53r
Rubber	1.419	1.417	1.422	1.411	54.82	55.47	56.23	55.02
1. Rubber tires and tubes	1.571	1.564	1.563	1.546	59.48	60.15	60.79	59.06
2. Other rubber products	1.190	1.194	1.199	1.193	47.44	48.02	48.66	48.16
Silk and rayon	1.128	1.114	1.092	1.060	46.37	46.21	44.99	44.84
Wool	1.194	1.194	1.117	1.118	49.29	49.11	46.51	47.41
1. Woolen and worsted goods	1.222	1.225	1.095	1.084	51.02	51.19	46.32	46.09
2. Other woolen products[6]	1.156	1.150	1.148	1.167	46.97	46.32	46.78	49.26
Foundries and machine shops	1.308	1.303	1.301	1.296	53.35	52.92	52.99	52.80
1. Foundries	1.316	1.297	1.300	1.303	53.45	52.45	52.70	53.29
2. Machines and machine tools	1.312	1.307	1.304	1.290	54.62	54.19	54.41	54.20
3. Heavy equipment	1.352	1.354	1.354	1.353	55.55	55.09	55.85	55.89
4. Hardware and small parts	1.253	1.250	1.254	1.246	51.65	51.28	51.43	51.30
5. Other products	1.302	1.297	1.289	1.282	52.15	51.91	51.32	50.72
25 INDUSTRIES	1.285	1.279	1.268	1.247	52.08	52.10	51.62	50.23r
Cement	1.044	1.040	1.036	1.046	43.07	42.91	41.92	42.62
Petroleum refining	1.520	1.510	1.515	1.492	60.76	60.78	60.25	60.04
27 INDUSTRIES	1.287	1.280	1.270	1.249	52.13	52.15	51.67	50.31r
Aircraft	1.416	1.419	1.404	1.412	56.13	56.60	55.37	56.46
Shipbuilding	1.430	1.447	1.433	1.458	54.97	55.32	55.08	55.82

See footnotes on page 122.

EARNINGS, HOURS, EMPLOYMENT, PAYROLLS, PRODUCTION WORKERS, TWENTY-FIVE MANUFACTURING INDUSTRIES

NOTE: *Hourly earnings are not wage rates, because they include overtime and other monetary compensation*

Date	Average Hourly Earnings	Average Weekly Earnings	Average Actual Hours per Week per Production Worker	Average Nominal Hours per Week per Production Worker	Index Numbers, 1923=100							
					Hourly Earnings		Weekly Earnings		Actual Hours per Week per Production Worker	Employment	Total Man Hours	Payrolls
					Actual	Real	Actual	Real				
1946 January	$1.107	$44.62	40.6	42.2	204.6	191.0	167.7	156.6	82.5	106.5	87.9	178.6
February	1.129	43.56	39.2	41.7	208.7	195.6	163.7	153.4	79.7	104.5	83.3	171.1
March	1.146	46.44	40.7	41.6	211.8	198.5	174.5	163.5	82.7	109.0	90.1	190.2
April	1.165	46.92	40.4	41.5	215.3	200.8	176.3	164.5	82.1	114.5	94.0	201.9
May	1.180	46.16	39.3	41.3	218.1	202.5	173.5	161.1	79.9	114.6	91.6	198.8
June	1.189	47.20	39.8	41.2	219.8	203.1	177.4	164.0	80.9	118.2	95.6	209.7
July	1.194	47.64	40.0	41.2	220.7	192.8	179.0	156.3	81.3	119.1	96.8	213.2
August	1.217	48.74	40.1	41.1	225.0	192.3	183.2	156.6	81.5	121.1	98.7	221.9
September	1.229	49.14	40.0	41.1	227.2	198.3	184.7	161.2	81.3	122.7	99.8	226.6
October	1.231	49.79	40.4	41.0	227.5	189.6	187.1	155.9	82.1	123.2	101.1	230.5
November	1.243	50.14	40.4	41.0	229.8	189.3	188.4	155.2	82.1	125.8	103.3	237.0
December	1.247	50.23r	40.4r	41.0	230.5	187.1r	188.8r	153.2r	82.1r	126.1r	103.5r	238.1r
Annual average	1.190	47.55	40.1	41.3	220.0	194.9	178.7	158.3	81.5	117.1	95.4	209.3
1947 January	1.268	51.62	40.8	41.0	234.4	190.6	194.0	157.7	82.9	127.1	105.4	246.6
February	1.279	52.10	40.8	41.0	236.4	192.7	195.8	159.6	82.9	128.8	106.8	252.2
March	1.285	52.08	40.6	41.0	237.5	190.2	195.7	156.7	82.5	128.9	106.3	252.3

See footnotes on page 122.

HOURS, PRODUCTION WORKERS, DECEMBER, 1946-MARCH, 1947

INDUSTRY	Average Hours per Week per Production Worker							
	Actual				Nominal			
	Mar.	Feb.	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.
Agricultural implement	40.4	39.9	39.8	40.0	40.2	40.1	40.1	40.1
Automobile[1]	38.9	38.9	36.9	37.1r	40.1	40.1	40.2	40.2
Boot and shoe	39.3	39.9	39.7	39.1	40.4	40.3	40.4	40.3
Chemical	39.2	39.4	39.4	38.8	40.4	40.5	40.5	40.6
Rayon producing[2]	38.6	38.8	38.7	37.9	40.1	40.1	40.1	40.1
Cotton—North	42.1	42.5	42.5	42.4	43.0	42.9	42.3	42.2
Electrical manufacturing	40.8	40.2	40.9	40.9	40.3	40.3	40.4	40.6
Furniture[3]	42.0	42.3	41.9	41.8	42.0	41.9	41.9	41.8
Hosiery and knit goods	39.2	39.9	39.9	40.5	41.2	41.2	41.2	41.3
Iron and steel[4]	38.2	39.0	40.4	35.7	40.6	40.6	40.8	40.4
Leather tanning and finishing	42.4	42.8	43.4	43.2	43.3	43.3	43.8	43.1
Lumber and millwork	41.1	41.0	40.0	41.0	41.8	41.8	41.8	41.5
Meat packing	42.4	47.0	48.7	46.3r	40.5	40.5	40.5	40.5r
Paint and varnish	41.6	41.2	41.0	40.8	41.6	41.8	41.8	41.8
Paper and pulp	44.0	43.8	44.1	43.9	41.7	41.6	41.4	41.5
Paper products[5]	41.9	41.8	42.3	41.5	42.4	42.5	42.5	41.9
Printing—book and job	42.6	43.0	43.4	43.5	42.7	42.9	42.9	42.7
Printing—news and magazine	41.3	41.2	40.9	39.9r	39.9	39.9	39.9	39.9r
Rubber	38.6	39.1	39.5	39.0	38.3	38.3	38.3	38.3
1. Rubber tires and tubes	37.9	38.5	38.9	38.2	37.9	37.9	37.9	37.9
2. Other rubber products	39.9	40.2	40.6	40.4	39.0	39.1	39.1	39.1
Silk and rayon	41.1	41.5	41.2	42.3	40.7	40.7	40.7	40.7
Wool	41.3	41.1	41.6	42.4	41.5	41.4	41.5	41.5
1. Woolen and worsted goods	41.7	41.8	42.3	42.5	42.4	42.3	42.3	42.3
2. Other woolen products[6]	40.6	40.3	40.7	42.2	40.3	40.3	40.3	40.3
Foundries and machine shops	40.8	40.6	40.7	40.7	41.0	41.0	40.9	41.0
1. Foundries	40.6	40.4	40.5	40.9	40.5	40.5	40.4	40.5
2. Machines and machine tools	41.6	41.4	41.7	42.0	41.0	41.0	41.4	41.5
3. Heavy equipment	41.1	40.7	41.3	41.3	41.3	41.3	41.2	41.2
4. Hardware and small parts	41.2	41.0	41.0	41.2	41.8	41.7	41.6	41.8
5. Other products	40.1	40.0	39.8	39.6	40.7	40.7	40.2	40.5
25 INDUSTRIES	40.6	40.8	40.8	40.4r	41.0	41.0	41.0	41.0
Cement	41.3	41.3	40.5	40.7	40.0	40.0	39.6	40.2
Petroleum refining	40.0	40.2	39.8	40.2	40.2	40.2	40.2	40.2
27 INDUSTRIES	40.6	40.8	40.8	40.4r	41.0	41.0	41.0	41.0
Aircraft	39.6	39.9	39.4	40.0	40.2	40.2	40.2	40.2
Shipbuilding	38.5	38.2	38.4	38.3	40.2	40.2	40.2	40.2

See footnotes on page 122.

EARNINGS, ALL PRODUCTION WORKERS, DECEMBER, 1946-MARCH, 1947

Index Numbers, 1923=100

NOTE: *Hourly earnings are not wage rates, because they include overtime and other monetary compensation*

INDUSTRY	Average Earnings											
	Hourly, Actual				Weekly							
					Actual				Real			
	Mar.	Feb.	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.
Agricultural implement	235.6	233.6	232.7	230.4	192.2	188.3	187.0	186.0	153.9	153.5	152.0	151.0r
Automobile[1]	224.1	224.1	223.3	224.8	182.6	182.7	172.8	175.1r	146.2	148.9	140.5	142.1r
Boot and shoe	189.7	188.8	190.1	190.3	162.3	163.8	164.4	162.0	129.9	133.5	133.7	131.5r
Chemical	266.7	265.4	258.7	253.5	206.0	205.9	200.8	193.9	164.9	167.8	163.3	157.4r
Cotton—North	242.7	242.2	238.0	227.4	214.0	216.0	212.0	202.1	171.3	176.0	172.4	164.0r
Electrical manufacturing	226.9	225.4	225.9	226.2	194.0	190.2	193.7	194.1	155.3	155.0	157.5	157.5r
Furniture[2]	242.7	243.1	239.1	237.5	211.3	213.2	207.8	205.8	169.2	173.8	168.9	167.0r
Hosiery and knit goods	278.5	276.4	278.5	277.2	236.0	238.4	240.1	242.7	189 0	194.3	195.2	197.0r
Iron and steel[3]	231.4	229.9	230.5	226.8	153.9	156.1	162.2	141.0	123.2	127.2	131.9	114.4r
Leather tanning and finishing	250.4	247.9	244.7	243.2	223.1	223.0	222.9	220.3	178.6	181.7	181.2	178.8r
Lumber and millwork	294.1	291.8	285.6	264.7	244.2	241.8	231.0	219.0	195.5	197.1	187.8	177.8r
Meat packing	250.7	253.3	255.0	238.7r	213.4	239.0	249.4	222 3r	170.9	194.8	202.8	180.4r
Paint and varnish	222.9	221.0	214.6	213.7	199.1	195.1	188.8	187.2	159.4	159.0	153.5	151.9r
Paper and pulp	230.2	228.0	225.2	222.4	195.8	193.1	192.1	188.8	156.8	157.4	156.2	153.2r
Paper products[5]	241.8	238.7	236.2	235.1	207.2	203.9	204.6	204.2	165.9	166.2	166.3	165.7r
Printing—book and job	216.1	212.9	210.7	211.0	200.9	199.7	199.5	200.1	160.8	162.8	162.2	162.4r
Printing—news and magazine	239.2	236.5	234.1	222.7r	219.2	216.0	212.5	197.0r	175.5	176.0	172.8	159.9r
Rubber	226.7	226.4	227.2	225.4	195.6	197.9	200.6	196.3	156.6	161.3	163.1	159.3r
Silk	227.4	224.6	220.2	213.7	201.3	200.7	195.4	194.7	161.2	163.6	158.9	158.0r
Wool	236.4	236.4	221.2	221.4	205.6	204.9	194.0	197.8	164.6	167.0	157.7	160.6r
Foundries and machine shops	228.3	227.4	227.1	226.2	188.1	186.5	186.8	186.1	150.6	152.0	151.9	151.1r
1. Foundries	223.1	219.8	220.3	220.8	180.5	177.1	178.0	180.0	144.5	144.3	144.7	146.1r
2. Machines and machine tools	239.0	238.1	237.5	235.0	200.1	198.5	199.3	198.5	160.2	161.8	162.0	161.1r
3. Heavy equipment	201.8	202.1	202.1	201.9	168.2	166.8	169 1	169 3	134.7	135.9	137.5	137.4r
4. Hardware and small parts	244.7	244.1	244.9	243.4	208.2	206.7	207.3	206.8	166.7	168.5	168.5	167.9r
5. Other products	232.5	231.6	230.2	228.9	190.8	189.9	187.8	185.6	152.8	154.8	152.7	150.6r
25 INDUSTRIES	237.5	236.4	234.4	230.5	195.7	195.8	194.0	188.8r	156.7	159.6	157.7	153.2r

See footnotes on page 122.

EMPLOYMENT, MAN HOURS, AND PAYROLLS, PRODUCTION WORKERS, DECEMBER, 1946-MARCH, 1947

Index Numbers, 1923=100

INDUSTRY	Employment				Total Man Hours Worked				Payrolls			
	Mar.	Feb.	Jan.	Dec.	Mar.	Feb	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.
Agricultural implement	191.1	191.8	189.6	187.8	155.9	154.6	152.4	151.7	367.3	361.2	354.6	349.3
Automobile[1]	138.4	137.5	129.6	125.6r	112.9	112.2	100.3	97.7r	252.7	251.2	223.9	219.9r
Boot and shoe	103.4	102.7	103.1	102.4	88.5	89.2	89.2	87.2	167.8	168.2	169.5	165.9
Chemical	195.1	193.3	192.3	190.7	151.2	150.6	149.8	146.3	401.9	398.0	386.1	369.8
Cotton—North	44.2	43.8	42.9	42.9	38.9	38.9	38.1	38.1	94.6	94.6	90.9	86.7
Electrical manufacturing	266.0	265.1	263.1	260.2	227.2	222.9	225.2	222.7	516.0	504.2	509.6	505.0
Furniture[2]	143.7	145.3	140.7	139.0	125.2	127.6	122.3	120.5	303.6	309.8	292.4	286.1
Hosiery and knit goods	90.0	89.7	86.9	86.4	76.2	77.3	74.9	75.6	212.4	213.8	208.6	209.7
Iron and steel[3]	124.8	124.5	123.3	121.7	82.6	84.2	86.3	75.3	192.1	194.3	200.0	171.6
Leather tanning and finishing	73.0	73.2	72.5	71.5	65.0	65.8	66.1	64.9	162.9	163.2	161.6	157.5
Lumber and millwork	54.6	53.4	52.6	52.4	45.3	44.2	42.5	43.4	133.3	129.1	121.5	114.8
Meat packing	103.2	104.5	105.3	104.3r	88.0	98.9	103.2	97.2r	220.2	249.8	262.6	231.9r
Paint and varnish	172.5	171.5	169.5	170.1	153.7	151.3	148.8	148.7	343.4	334.6	320.0	318.4
Paper and pulp	145.1	144.9	144.3	144.5	123.2	122.6	122.8	122.4	284.1	279.8	277.2	272.8
Paper products[5]	191.6	192.1	192.9	193.2	165.2	165 2	167.8	168.5	397.0	391.7	394.7	394.5
Printing—book and job	150.2	154.8	153.7	150.6	139.4	145.0	145.4	142.8	301.8	309.1	306.6	301.4
Printing—news and magazine	143.9	143.4	140.5	142.1r	132.1	131.4	127.7	126.0r	315.4	309.7	298.6	279.9r
Rubber	154.7	155.7	156.1	156.7	133.4	135.9	137.7	136.5	302.6	308.1	313.1	307.6
Silk	99.4	102.4	95.2	95.1	87.9	91.3	84.3	86.5	200.1	205.5	186.0	185.2
Wool	83.3	82.3	81.5	81.1	72.4	71.2	71.4	72.4	171.3	168.6	158.1	160.4
Foundries and machine shops	148.1	148.4	147.8	147.4r	121.9	121.5	121.3	121.0r	278.6	276.8	276.1	274.3r
1. Foundries	158.5	159.8	159.1	158.9	128.2	128.6	128.4	129.5	286.1	283.0	283.2	286.0
2. Machines and machine tools	145.2	144.8	144.2	145.2	121.2	120.3	120.7	122.4	290.5	287.4	287.4	288.2
3. Heavy equipment	111.3	110.2	108.6	109.2r	92.8	91.0	91.0	91.5r	187.2	183.8	183.6	184.9r
4. Hardware and small parts	157.2	157.9	156.7	155.8	133.5	133.4	132.4	132.3	327.3	326.4	324.8	322.2
5. Other products	157.1	158.4	159.1	157.1	129.1	129.9	129.8	127.4	299.7	300.8	298.8	291.6
25 INDUSTRIES	128.9	128.8	127.1	126.1r	106.3	106.8	105.4	103.5r	252.3	252.2	246.6	238.1r

NOTE: No basic 1923 data are available, hence no indexes are given for the following : rubber tires and tubes, other rubber products, woolen and worsted goods, other woolen products, cement, petroleum refining, and "27 Industries".

Footnotes given on page 122.

EARNINGS AND HOURS, ALL MALE PRODUCTION WORKERS, DECEMBER, 1946-MARCH, 1947

NOTE: *Hourly earnings are not wage rates, because they include overtime and other monetary compensation*

INDUSTRY	All Male											
	Average Earnings in Dollars								Average Hours per Week per Production Worker			
	Hourly				Weekly							
	Mar.	Feb	Jan.	Dec.	Mar.	Feb	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.
Agricultural implement	1.317	1.305	1.301	1.288	53.22	52.14	51.78	51.53	40.4	39.9	39.8	40.0
Automobile[1]	1.441	1.441	1.437	1.445	56.19	56.23	53.33	53.86r	39.0	39.0	37.1	37.3r
Boot and shoe	1.132	1.126	1.134	1.136	44.92	45.34	45 54	45.24	39.7	40.3	40.2	39.8
Chemical	1.412	1.406	1.375	1.346	55.76	55 84	54.48	52.67	39.5	39.7	39.6	39.1
Rayon producing[2]	1.257	1.245	1.172	1.173	49.35	49.09	46.06	45.04	39.3	39.4	39.3	38.4
Cotton—North	1.136	1.133	1.121	1.082	50.02	50.36	49.91	47.95	44.0	44.4	44.5	44.3
Electrical manufacturing	1.380	1.371	1.373	1.381	57.46	56.33	57.18	57.61	41.6	41.1	41.7	41.7
Furniture[3]	1.286	1.290	1 267	1.262	54.27	54.82	53 54	52.89	42.2	42.5	42.3	41.9
Hosiery and knit goods	1.403	1.409	1.407	1.413	56.34	57.91	57.85	59.35	40.2	41.1	41.1	42.0
Iron and steel[4]	1.384	1.375	1.379	1.356	52.88	53.67	55.76	48.38	38.2	39.0	40.4	35.7
Leather tanning and finishing	1.243	1.228	1.210	1.204	53.45	53.24	53.18	52.86	43.0	43.3	43.9	43.9
Lumber and millwork	1.406	1.395	1.364	1.263	58.07	57.46	54.78	51.85	41.3	41.2	40.2	41.1
Meat packing	1.220	1.235	1.245	1.168r	52.46	59.30	62.05	55.18r	43.0	48.0	49.8	47.2r
Paint and varnish	1.274	1.262	1.225	1.220	53.23	52.09	50.38	49.96	41.8	41.3	41.1	40.9
Paper and pulp	1.178	1.168	1 154	1.140	52.30	51.59	51.30	50.39	44.4	44.2	44.5	44.2
Paper products[7]	1.205	1.193	1.181	1.201	52 37	51.65	51.69	51.19	43.4	43.3	43.8	42.6
Printing—book and job	1.597	1.584	1.576	1.572	70.74	70.80	71.10	70.52	44.3	44.7	45.1	44.8
Printing—news and magazine	1.770	1.751	1.733	1.642r	73.71	72.61	71.50	65.79r	41.6	41.5	41.3	40.1r
Rubber	1.528	1.527	1.530	1.518	59.68	60.47	61.30	59.78	39.0	39.6	40.1	39.4
1. Rubber tires and tubes	1.630	1.623	1.623	1.606	62.32	63.07	63.76	61.82	38.2	38.9	39.3	38.5
2. Other rubber products	1.325	1.331	1.336	1.331	54.02	54.88	55.82	55.12	40.8	41.2	41.8	41.4
Silk and rayon	1.206	1.193	1.175	1.150	51.04	50.88	49.90	50.25	42.3	42.7	42.5	43.7
Wool	1.248	1.247	1.176	1.179	52.99	52.32	50.24	51.48	42.4	41.9	42.7	43.7
1. Woolen and worsted goods	1.271	1.271	1.141	1.130	54.86	54.26	49.82	49.64	43.1	42.7	43.7	43.9
2. Other woolen products[6]	1.222	1.219	1.220	1.239	50.89	50.09	50.74	53.76	41.7	41.1	41.6	43.4
Foundries and machine shops	1.337	1.333	1.330	1.324	54.87	54.47	54.49	54.26	41.0	40.9	41.0	41.0
1. Foundries	1.324	1.305	1.308	1.311	53.88	52.88	53.10	53.71	40.7	40.5	40.6	41.0
2. Machines and machine tools	1.326	1.321	1.319	1.305	55.45	55.04	55.24	55.06	41.8	41.7	41.9	42.2
3. Heavy equipment	1.361	1.365	1.365	1.364	55.98	55.61	56.42	56.48	41.1	40.7	41.3	41.4
4. Hardware and small parts	1.308	1.305	1.311	1.302	54.55	54.23	54.42	54.18	41.7	41.5	41.5	41.6
5. Other products	1.343	1.339	1.327	1.320	54.23	53.98	53.21	52.45	40.4	40.3	40.1	39.7
25 INDUSTRIES	1.353	1.348	1.337	1.315r	55.37	55.42	54.97	53.36r	41.0	41.2	41.2	40.7r
Cement	1.044	1.040	1.036	1.046	43.07	42.91	41.92	42.62	41.3	41.3	40.5	40.7
Petroleum refining	1.520	1.510	1.515	1.492	60.76	60.78	60.25	60.04	40.0	40.2	39.8	40.2
27 INDUSTRIES	1.353	1.348	1 338	1.316	55.35	55.40	54.94	53.38r	40.9	41.2	41.2	40.7r
Aircraft	1.444	1.448	1.437	1.447	57.41	57.92	56.84	57.96	39.8	40.0	39.5	40.1
Shipbuilding	1.433	1.451	1 437	1.462	55.14	55.48	55.24	55.99	38.5	38.2	38.4	38.3

See footnotes on page 122.

the proportion of women workers, the lowest paid group, has been steadily decreasing and the proportion of skilled male, the highest paid, increasing.

The wartime peak for weekly earnings also was surpassed in each of the first three months of 1947. The March average, while very slightly below that for February, was 2.1% above the wartime high of March, 1945. It was 12.1% greater than the same month of last year and 70.1% above the average for January, 1941, the base date of the Little Steel formula. The $52.08 a week received by the average worker in March was 9.5% larger than his average weekly rate for the year 1946. Real weekly earnings (actual weekly earnings adjusted for changes in the consumers' price index in terms of 1923 dollars) have shown considerable variation since the beginning of 1946. They declined in eight of the fifteen months from January of that year through March of this year, and rose in the other seven. The index in March, 1947, was 1.8% lower than that for February and 4.2% below last March. While it was lower than during most of the war period, it was higher than in any month prior to September, 1942, and was 17.2% larger than in January, 1941.

There was very little change in the length of the work week during the first quarter of 1947. In January and February, 40.8 hours were worked in a representative week, and in March, 40.6 hours. These hours were well above the average work week for the year 1946, which was 40.1 hours in length. Nominal hours, or the scheduled number of hours of operation for a plant, shift, or department for one week, averaged 41 hours during the six months from October, 1946, through this March. This was 3.4 hours less than the longest hours scheduled during the war, when in three different months the nominal week equaled 44.4 hours.

Total man hours in each of the months from January through March were well above the 1946 average. However, in spite of the increases in most of the

EARNINGS AND HOURS, FEMALE PRODUCTION WORKERS, DECEMBER, 1946-MARCH, 1947

NOTE: *Hourly earnings are not wage rates, because they include overtime and other monetary compensation*

INDUSTRY	Female											
	Average Earnings in Dollars								Average Hours per Week per Production Worker			
	Hourly				Weekly							
	Mar.	Feb.	Jan.	Dec.	Mar	Feb.	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.
Agricultural implement	1.132	1.130	1.124	1.117	44.24	43.48	43.54	43.40	39.1	38.5	38.7	38.9
Automobile[1]	1.211	1.202	1.180	1.214r	45.79	45.53	41.61	43.75r	37.8	37.9	35.3	36.1r
Boot and shoe	.857	.853	.858	.857	33.33	33.71	33.69	32.89	38.9	39.5	39.3	38.4
Chemical	.992	.982	.940	.935	36.94	36.66	35.58	34.50	37.2	37.3	37.8	36.9
Rayon producing[2]	1.049	1.028	.958	.955	38.62	37.81	35.44	34.70	36.8	36.8	37.0	36.4
Cotton—North	.994	.994	.965	.909	39.13	39.72	38.41	36.23	39.4	40.0	39.8	39.8
Electrical manufacturing	1.050	1.047	1.054	1.043	40.62	39.97	41.12	40.71	38.7	38.2	39.0	39.0
Furniture[3]	1.005	.998	.986	.979	40.50	40.53	38.92	40.07	40.3	40.6	39.5	40.9
Hosiery and knit goods	.902	.884	.894	.881	34.94	34.79	35.09	35.08	38.7	39.3	39.3	39.8
Iron and steel[4]	1.036	1.025	1.027	1.075	39.29	38.02	40.43	40.64	37.9	37.1	39.4	37.8
Leather tanning and finishing	1.051	1.063	1.057	1.045	41.33	42.56	42.59	40.84	39.3	40.0	40.3	39.1
Lumber and millwork	1.006	.995	1.026	.995	37.24	37.22	37.81	38.89	37.0	37.4	36.9	39.1
Meat packing	1.014	1.010	1.009	.937r	39.98	42.66	44.15	39.78r	39.4	42.2	43.7	42.5r
Paint and varnish	.945	.947	.926	.920	37.05	37.42	36.55	35.97	39.2	39.5	39.5	39.1
Paper and pulp	.857	.840	.836	.829	33.45	32.89	33.20	33.02	39.0	39.1	39.7	39.8
Paper products[5]	.866	.848	.845	.836	33.46	32.75	33.14	33.07	38.6	38.6	39.2	39.5
Printing—book and job	.933	.921	.918	.922	36.27	36.35	36.76	37.41	38.9	39.5	40.1	40.6
Printing—news and magazine	.978	.968	.964	.950r	38.35	38.13	37.63	36.89r	39.2	39.4	39.0	38.8r
Rubber	1.041	1.040	1.042	1.036	38.85	39.09	39.39	39.05	37.3	37.6	37.8	37.7
1. Rubber tires and tubes	1.206	1.201	1.198	1.187	43.01	43.50	44.00	43.31	35.7	36.2	36.7	36.5
2. Other rubber products	.945	.942	.941	.937	36.24	36.26	36.27	36.12	38.3	38.5	38.6	38.6
Silk and rayon	.928	.924	.899	.854	35.53	35.94	34.65	33.73	38.3	38.9	38.5	39.5
Wool	1.094	1.095	1.004	1.001	42.91	43.53	39.86	40.14	39.2	39.7	39.7	40.1
1. Woolen and worsted goods	1.147	1.154	1.020	1.007	45.61	46.72	41.03	40.71	39.8	40.5	40.2	40.4
2. Other woolen products[6]	.994	.985	.975	.990	38.02	37.81	37.75	39.10	38.3	38.4	38.7	39.5
Foundries and machine shops	1.032	1.026	1.023	1.020	39.81	39.40	39.25	39.46	38.6	38.4	38.4	38.7
1. Foundries	1.068	1.051	1.061	1.058	40.35	39.82	41.11	41.04	37.8	37.9	38.8	38.8
2. Machines and machine tools	1.044	1.038	1.030	1.016	40.16	39.27	40.00	39.47	38.5	37.8	38.8	38.9
3. Heavy equipment	1.041	1.006	.986	.983	40.58	39.11	37.92	36.65	39.0	38.9	38.5	37.3
4. Hardware and small parts	.974	.973	.966	.965	37.94	37.52	37.42	37.84	38.9	38.6	38.7	39.2
5. Other products	1.058	1.053	1.055	1.053	40.64	40.45	40.16	40.58	38.4	38.4	38.1	38.5
25 INDUSTRIES	.977	.971	.954	.939	37.90	38.04	37.33	36.90r	38.8	39.2	39.2	39.3r
Aircraft	1.210	1.211	1.195	1.208	47.06	47.57	46.40	47.74	38.9	39.3	38.8	39.5
Shipbuilding	1.061	1.083	1.058	1.075	38.35	41.26	39.52	38.96	36.2	38.1	37.4	36.2

See footnotes on page 122.

months since early 1946, the March level was lower than at any time from September, 1941, through July, 1945. It was 25.5% below the peak for this series.

EMPLOYMENT AND PAYROLLS

In the first quarter of 1947, employment continued the rise which has been uninterrupted since March, 1946. The increase from February to March amounted to only 0.1%. The March index of 128.9 (1923=100) was 18.3% greater than last March. It was still 16.4% below the peak of October and November, 1943, but was 24.2% higher than the postwar low point of September, 1945.

Total payrolls were expanded substantially in January and February, but increased less than 0.1% from February to March. The index in this latest month was only 8.5% below the peak of November, 1943, and was 47.5% greater than that of February, 1946, the low point of the postwar slump. Only in the months from March, 1943, through April, 1945, were payrolls greater than this March. Since 1929 they have been inceased 132.7%.

Although the average hourly earnings of the men employed in cement plants and their average work week both declined somewhat from December to January, increases were recorded in the next two months. The averages in March were higher than those of the first month of the year for both the unskilled and the skilled workers, as well as for all workers combined. The number of men employed in the industry did not vary appreciably during the three months.

Employment in petroleum refineries declined slightly in each of the first three months of 1947. Hourly earnings rose from December to January, but were lowered fractionally in February. The increase from February to March brought a new peak level for the series. Since March, 1946, these hourly earnings have risen 5.9%, although working hours were practically the same in the two months.

The hourly earnings of aircraft workers did not, during the first quarter of 1947, reach the peak for the

EARNINGS AND HOURS, UNSKILLED MALE PRODUCTION WORKERS, DECEMBER, 1946-MARCH, 1947

NOTE: *Hourly earnings are not wage rates, because they include overtime and other monetary compensation*

INDUSTRY	Unskilled											
	Average Earnings in Dollars								Average Hours per Week per Production Worker			
	Hourly				Weekly							
	Mar.	Feb.	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.
Agricultural implement	1.124	1.109	1.101	1.096	44.67	43.82	43.35	42.69	39.8	39.5	39.4	39.0
Automobile[1]	1.219	1.216	1.206	1.211r	48.68	48.76	46.32	45.20r	39.9	40.1	38.4	37.3r
Boot and shoe	.594	.594	.591	.594	25.02	25.54	25.45	25.42	42.1	43.0	43.1	42.8
Chemical	1.162	1.166	1.145	1.124	46.08	46.52	45.79	44.84	39.7	39.9	40.0	39.9
Rayon producing[2]	1.017	1.009	.947	.947	39.27	39.27	36.77	36.30	38.6	38.9	38.8	38.3
Cotton—North	1.011	1.015	1.017	.987	44.37	44.48	45.49	43.80	43.9	43.8	44.7	44.4
Electrical manufacturing	1.112	1.101	1.076	1.086	45.50	43.99	43.58	43.77	40.9	40.0	40.5	40.3
Furniture[3]	.974	.984	.982	.950	40.23	40.73	40.25	39.91	41.3	41.4	41.0	42.0
Hosiery and knit goods	1.017	1.006	1.008	.996	44.35	45.24	45.22	44.90	43.6	45.0	44.9	45.1
Iron and steel[4]	1.088	1.083	1.105	1.076	39.37	39.61	42.74	38.04	36.2	36.6	38.7	35.3
Leather tanning and finishing	1.041	1.041	1.026	1.018	43.25	41.57	42.11	41.65	41.5	39.9	41.0	40.9
Lumber and millwork	1.064	1.051	1.050	.989	44.02	44.55	42.52	41.42	41.4	42.4	40.5	41.9
Meat packing	1.053	1.098	1.110	1.017r	43.51	52.25	54.27	46.87r	41.3	47.6	48.9	46.1r
Paint and varnish	1.046	1.041	1.032	1.017	44.88	43.32	42.92	42.86	42.9	41.6	41.6	42.1
Paper and pulp	1.016	1.005	1.003	.995	43.06	42.03	42.41	41.75	42.4	41.8	42.3	42.0
Paper products[5]	.953	.936	.938	.953	39.69	38.84	39.52	39.26	41.7	41.5	42.1	41.2
Printing—book and job	1.075	1.061	1.073	1.071	49.82	49.02	49.60	48.15	46.4	46.2	46.2	44.9
Printing—news and magazine	1.220	1.211	1.198	1.142r	47.79	47.57	48.74	42.95r	39.2	39.3	40.7	37.6r
Rubber	1.304	1.214	1.209	1.235	51.21	47.22	47.27	48.78	39.3	38.9	39.1	39.5
1. Rubber tires and tubes	1.293	1.267	1.269	1.296	49.52	48.15	48.35	49.90	38.3	38.0	38.1	38.5
2. Other rubber products	1.011	1.011	.972	.966	43.94	43.47	41.79	42.93	43.5	43.0	43.0	44.4
Wool	1.106	1.103	1.021	1.021	47.10	46.39	43.86	44.75	42.6	42.1	42.9	43.8
1. Woolen and worsted goods	1.149	1.144	1.019	1.007	48.94	48.22	43.93	43.46	42.6	42.2	43.1	43.2
2. Other woolen products[6]	1.031	1.030	1.027	1.045	43.86	43.15	43.72	47.05	42.6	41.9	42.6	45.0
Foundries and machine shops	1.133	1.125	1.117	1.113	46.00	45.68	45.20	45.28	40.6	40.6	40.5	40.7
1. Foundries	1.158	1.136	1.138	1.123	46.72	46.30	46.51	45.32	40.3	40.7	40.9	40.4
2. Machines and machine tools	1.104	1.098	1.110	1.112	45.37	45.97	46.66	47.06	41.1	41.9	42.1	42.3
3. Heavy equipment	1.101	1.085	1.073	1.072	45.31	44.07	43.37	44.85	41.2	40.6	40.4	41.8
4. Hardware and small parts	1.110	1.114	1.100	1.094	45.77	46.17	45.13	44.49	41.2	41.5	41.0	40.7
5. Other products	1.167	1.159	1.149	1.152	46.48	45.91	45.09	45.14	39.8	39.6	39.2	39.2
24 INDUSTRIES[10]	1.093	1.088	1.083	1.061	44.52	44.74	44.46	43.19r	40.8	41.2	41.1	40.8r
Cement	.890	.892	.881	.900	33.46	33.88	32.58	33.14	37.6	38.0	37.0	36.8
Petroleum refining	1.107	1.105	1.101	1.108	42.31	43.20	42.61	42.70	38.2	39.1	38.7	38.5
26 INDUSTRIES[10]	1.091	1.086	1.081	1.060	44.40	44.63	44.33	43.10r	40.7	41.1	41.1	40.8r
Aircraft	1.221	1.184	1.174	1.182	46.52	47.83	47.66	48.46	38.1	40.4	40.6	41.0
Shipbuilding	1.095	1.084	1.085	1.117	40.97	39.89	39.95	42.12	37.4	36.8	36.8	37.7

See footnotes on page 122.

series which was established last November. There was, in fact, little variation during these three months from the December average. The slight changes from month to month followed in general the small changes in the length of the work week. Total employment in the industry rose from December to January, but declined during the next two months. The number of women employed dropped each month so that by March they were only 12.3% of all workers, whereas in December they had comprised 14.7% of the total.

As in the last quarter of 1946, the hourly earnings of shipyard workers showed little variation in the first three months of this year. But the general trend seems to be downward and the March average of $1.430 was 3.1% lower than last September's average. It was, however, 9.2% higher than in March of last year. The work week has also been increased over the year, but only to 38.5 hours, the average this March.

Hourly earnings in January were 1.7% greater than in December. In February they were increased 0.9% more and in March a further 0.5%. In this latest month they averaged $1.285, 12.1% more than in March, 1946, and 117.8% higher than the 1929 level.

Weekly earnings rose 2.8% from December to January, and 0.9% from then to February. In March they declined slightly (less than 0.1%) but they were 12.1% greater than in March, 1946, and 82.4% more than in 1929.

Real weekly earnings in January were 2.9% greater than in December, and in February they were 1.2% above the January level. They declined 1.8% in March and were 4.2% lower than in March, 1946. Since 1929, they have risen 46.2%.

Hours per week were lengthened 0.4 hour, or 1%, from December to January, remained the same in February and declined 0.2 hour, or 0.5%, in March. They were only 0.1 hour, or 0.2% shorter than in March of last year, but 15.9% less than in 1929.

Employment rose in the first three months of the year, 0.8% from December to January, 1.3% from

EARNINGS AND HOURS, SKILLED AND SEMI-SKILLED MALE PRODUCTION WORKERS, DECEMBER, 1946-MARCH, 1947

NOTE: *Hourly earnings are not wage rates, because they include overtime and other monetary compensation*

INDUSTRY	Skilled and Semi-Skilled											
	Average Earnings in Dollars								Average Hours per Week per Production Worker			
	Hourly				Weekly							
	Mar.	Feb.	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.	Mar.	Feb.	Jan.	Dec.
Agricultural implement	1.349	1.338	1.335	1.317	54.70	53.56	53.23	52.93	40.5	40.0	39.9	40.2
Automobile[1]	1.467	1.468	1.465	1.472r	57.07	57.11	54.15	54.83r	38.9	38.9	37.0	37.3r
Boot and shoe	1.155	1.150	1.159	1.161	45.73	46.16	46.40	46.10	39.6	40.1	40.0	39.7
Chemical	1.481	1.471	1.437	1.407	58.39	58.34	56.80	54.75	39.4	39.7	39.5	38.9
Rayon producing[2]	1.287	1.274	1.200	1.203	50.62	50.31	47.23	46.16	39.3	39.5	39.4	38.4
Cotton—North	1.193	1.189	1.170	1.127	52.53	53.16	52.00	49.91	44.1	44.7	44.4	44.3
Electrical manufacturing	1.416	1.406	1.412	1.419	59.09	57.99	59.04	59.49	41.7	41.2	41.8	41.9
Furniture[3]	1.313	1.316	1.290	1.289	55.52	56.07	54.70	54.01	42.3	42.6	42.4	41.9
Hosiery and knit goods	1.448	1.457	1.449	1.458	57.61	59.27	59.07	60.82	39.8	40.7	40.8	41.7
Iron and steel[4]	1.446	1.436	1.444	1.423	55.88	56.83	59.03	50.88	38.7	39.6	40.9	35.7
Leather tanning and finishing	1.279	1.260	1.242	1.238	55.31	55.39	55.24	55.04	43.3	44.0	44.5	44.5
Lumber and millwork	1.507	1.498	1.454	1.346	62.22	61.19	58.24	54.94	41.3	40.9	40.1	40.8
Meat packing	1.277	1.286	1.296	1.223r	55.68	61.98	65.09	58.29r	43.6	48.2	50.2	47.7r
Paint and varnish	1.362	1.349	1.301	1.308	56.36	55.52	53.28	52.92	41.4	41.2	40.9	40.5
Paper and pulp	1.245	1.235	1.215	1.198	56.34	55.79	55.18	54.16	45.3	45.2	45.4	45.2
Paper products[11]	1.286	1.277	1.268	1.294	56.65	56.07	56.31	55.85	44.1	43.9	44.4	43.2
Printing—book and job	1.796	1.787	1.763	1.746	78.23	78.90	78.84	78.26	43.6	44.1	44.7	44.8
Printing—news and magazine	1.933	1.912	1.891	1.795r	82.01	80.62	78.35	73.39r	42.4	42.2	41.4	40.9r
Rubber	1.536	1.535	1.538	1.525	59.97	60.82	61.68	60.05	39.0	39.6	40.1	39.4
1. Rubber tires and tubes	1.640	1.634	1.633	1.615	62.70	63.54	64.23	62.16	38.2	38.9	39.3	38.5
2. Other rubber products	1.332	1.338	1.344	1.339	54.23	55.11	56.11	55.35	40.7	41.2	41.7	41.3
Wool	1.326	1.325	1.254	1.259	56.20	55.51	53.46	54.88	42.4	41.9	42.6	43.6
1. Woolen and worsted goods	1.360	1.361	1.217	1.207	59.24	58.60	53.58	53.57	43.6	43.1	44.0	44.4
2. Other woolen products[6]	1.295	1.291	1.293	1.314	53.51	52.68	53.35	56.23	41.3	40.8	41.2	42.8
Foundries and machine shops	1.376	1.373	1.367	1.361	56.57	56.15	56.14	55.86	41.1	40.9	41.1	41.0
1. Foundries	1.377	1.359	1.363	1.370	56.20	54.99	55.21	56.39	40.8	40.5	40.5	41.2
2. Machines and machine tools	1.357	1.353	1.349	1.333	56.89	56.32	56.45	56.21	41.9	41.6	41.9	42.2
3. Heavy equipment	1.401	1.406	1.409	1.411	57.64	57.33	58.46	58.34	41.1	40.8	41.5	41.3
4. Hardware and small parts	1.354	1.349	1.359	1.349	56.60	56.08	56.56	56.40	41.8	41.6	41.6	41.8
5. Other products	1.377	1.374	1.353	1.345	55.71	55.56	54.46	53.56	40.5	40.4	40.2	39.8
24 INDUSTRIES[10]	1.414	1.409	1.397	1.376	57.87	57.89	57.40	55.72r	41.0	41.1	41.2	40.6r
Cement	1.060	1.056	1.053	1.063	44.22	44.00	43.05	43.85	41.7	41.7	40.9	41.3
Petroleum refining	1.559	1.550	1.556	1.529	62.59	62.55	62.02	61.78	40.1	40.4	39.9	40.4
26 INDUSTRIES[10]	1.413	1.408	1.397	1.376	57.84	57.86	57.36	55.73r	41.0	41.1	41.1	40.6r
Aircraft	1.452	1.458	1.448	1.457	57.78	58.30	57.21	58.31	39.8	40.0	39.5	40.0
Shipbuilding	1.475	1.500	1.488	1.510	56.95	57.68	57.55	57.95	38.6	38.4	38.7	38.4

NOTE: The wage data here given are for cash payments only and do not take into consideration the value of such wage equivalents as reduced or free house rents or other special services rendered by the company to employees. Various forms of wage equivalents are in use in industrial establishments in many localities, but the part which they play as compensation for work performed cannot be taken into account in a study of this character.

[1]Based on data collected by the Automobile Manufacturers Association and THE CONFERENCE BOARD.

[2]Based on data collected by the Textile Economics Bureau, Inc. and THE CONFERENCE BOARD.

[3]Includes wood, metal, and upholstered household and office furniture.

[4]Based on data collected by the American Iron and Steel Institute and THE CONFERENCE BOARD.

[5]Change in sample; data prior to January not strictly comparable to those following. January comparable to December: hourly, $1.077; weekly, $44.57; actual hours, 41.4; nominal hours, 41.9. Indexes linked, hence comparable throughout.

[6]Principally rugs.

[7]Change in sample; data prior to January not strictly comparable to those following. January comparable to December: hourly, $1.204; weekly, $51.35; actual hours, 42.7.

[8]Change in sample; data prior to January not strictly comparable to those following. January comparable to December: hourly, $.839; weekly, $32.91; hours, 39.2.

[9]Change in sample; data prior to January not strictly comparable to those following. January comparable to December: hourly, $.956; weekly, $39.21; hours, 41.0.

[10]Silk and rayon industry not included, as adequate data for unskilled and skilled groups are not available for this industry.

[11]Change in sample; data prior to January not strictly comparable to those following. January comparable to December: hourly, $1.293; weekly, $55.95; hours, 43.3.

rRevised.

then to February, and 0.1% to March. Since last March it has increased 18.3% and since 1929, 27.6%.

Man hours were 1.8% greater in January than in December, and rose a further 1.3% in February. The March index was 0.5% lower than that of February, but 18% higher than the same month of last year. It was 7.2% above the 1929 average.

Payrolls in January were 3.6% larger than those of December, and in February they were expanded 2.3% more. In March they rose less than 0.1%, were 32.6% greater than the previous March and 132.7% larger than in 1929.

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Consumers' Price Index, March, 1947

CONSUMERS' prices increased 1.4% from December, 1946, to March, 1947, as measured by THE CONFERENCE BOARD's survey of expenditures by moderate-income families. The increase for the year was 17.1%, and brought the purchasing value of the 1923 dollar down to 80.1 cents.

In March, 1947, the consumers' price index stood at 124.9 (1923=100) or 1.5% above the June, 1920, peak of 123.1. This was the highest level ever reached by the index since it was begun in July, 1914. The index for the last quarter of 1946, as revised, stands at 123.2, or 0.1% above the June, 1920, peak, and not slightly below as originally published. The 1920 peak has thus been exceeded for the last two quarters.

In World War I—that is, from July, 1914, to June, 1920—the index more than doubled, increasing 100.8% (in July, 1914, the index was at the low level of 61.3). In World War II, for the comparable period, from September, 1939, the index rose 46.3%.

There are no indications that the index has reached its post-World War II peak. The rate of increase may have slackened, however, since the quarterly increase from December, 1946, to March, 1947, is only 1.4%, as compared with increases of 7.4% and 6.0% in the two preceding quarters.

Measuring Department Store Prices

An index of department store prices is computed semiannually by THE CONFERENCE BOARD.[1] An increase of 47.4% was reported from January 31, 1941, to January 31, 1947, in the over-all index when the indexes for the stores' departments were reweighted by sales data instead of the inventory data originally used. This rise shows a close correspondence with the 44.3% increase in the clothing and housefurnishings components of the Board's regular consumers' price index for the period from January 31, 1941, to December 15, 1946. The increase from December 15, 1946, to March 15, 1947, in the consumers' price index indicates that an even closer relationship would have been shown had data been available to compute the change up to January 31, 1947.

Much newspaper mention has been made of instances of department stores and other retailers making special drives to lower prices. The majority of these reductions took place after March 15, 1947, and would, therefore, not be reflected in the Board's survey until June. It is doubtful, however, whether there have been sufficient reductions to influence the index.

For the quarter under review, the clothing component of the consumers' price index evidenced the largest quarterly increase, one of 2.4%. The rise in men's clothing prices was 2.9% while prices for women's clothing increased 1.7%. Food showed the next highest rise of 2.0%, mostly reflecting higher prices for meats, cereals, fresh and canned vegetables, and miscellaneous items. Sundries increased 0.8% over the quarter, with drugs, toilet articles and gasoline generally higher. Transportation fares rose in several cities, while costs of automobile licenses and taxes decreased in several states.

Two cities actually showed an over-all decrease for the quarter. The New Orleans index declined 0.5% and the Seattle index 0.3%. In New Orleans, food prices showed a drop of 3.1%, and in Seattle 1.9%.

In the other sixty-four cities, increases ranged from 0.7% in Chicago and Minneapolis to 3.5% in Cincinnati. The median change fell between an increase of 1.8% and 1.7% covering ten cities.

Over the year, all cities for which annual data are available experienced increases. New Haven, with an increase of 13.6%, was the lowest. The largest increase was one of 23.0% in Louisville.

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[1]See the article in the May, 1947, issue of *The Business Record* entitled, "Department Store Prices," for additional details on this index, which is prepared for the National Retail Dry Goods Association.

CONSUMERS' PRICE INDEX FOR THE UNITED STATES, AND PURCHASING VALUE OF THE DOLLAR

Date	Weighted Average of All Items	Food	Housing[1]	Clothing			Fuel and Light			Sundries	Purchasing Value of Dollar
				Total	Men's	Women's	Total[2]	Electricity	Gas		
	Index Numbers, 1923=100										
1946 March	106.7	113.8	91.0	94.8	104.2	85.4	97.4	66.9	94.5	115.9	93.7
June	108.2	116.2	91.0	96.4	106.8	85.9	97.3	66.9	94.5	117.6	92.4
September	114.7	131.4	91.0	99.7	111.4	88.0	99.9	66.9	94.5	120.2	87.2
December	123.2*r*	149.3*ra*	91.0	105.8*r*	121.0*r*	90.5*r*	100.3*r*	66.9	94.5	125.9*r*	81.2*r*
1947 March	124.9	152.3*b*	91.0	108.3	124.5	92.0	101.5	66.9	94.5	126.9	80.1
	Percentage Changes										
Dec. 1946 to Mar. 1947	+1.4	+2.0	0	+2.4	+2.9	+1.7	+1.2	0	0	+0.8	−1.4
Mar. 1946 to Mar. 1947	+17.1	+33.8	0	+14.2	+19.5	+7.7	+4.2	0	0	+9.5	−14.5

[1]Data on housing collected twice annually, June 15 and December 15. It is assumed no change has occurred since December 15, 1946.
[2]Includes fuel as well as electricity and gas.

*r*Revised.
*a*Based on food prices for December 16, 1946.
*b*Based on food prices for March 18, 1947.

CONSUMERS' PRICE INDEXES FOR SIXTY CITIES

Source: The Conference Board

Note: These indexes do NOT show intercity differences in price level or standards of living. They show only changes in consumers' prices in each city, which changes may be compared with those for other cities.

City	Index Numbers Jan., 1939 = 100			Percentage Changes	
	Mar. 1947	Dec. 1946	Mar. 1946	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947
Akron					
Food	205.0	199.6	150.3	+2.7	+36.4
Housing[1]	113.9	113.9	113.8	0	+0.1
Clothing	146.3	143.3	129.4	+2.1	+13.1
Fuel and light	124.3	121.2	115.2	+2.6	+7.9
Housefurnishings	128.0	129.9	120.7	−1.5	+6.0
Sundries	137.2	135.9	127.2	+1.0	+7.9
Weighted Total	152.8	150.3	130.8	+1.7	+16.8
Atlanta					
Food	216.2	200.2	150.1	+8.0	+44.0
Housing[1]	99.2	99.2	99.2	0	0
Clothing	149.2	147.6r	131.3	+1.1	+13.6
Fuel and light	122.6	124.6	113.1	−1.6	+8.4
Housefurnishings	133.0	133.0	125.1	0	+6.3
Sundries	128.6	128.5	119.0	+0.1	+8.1
Weighted Total	151.5	146.8r	126.2	+3.2	+20.0
Baltimore					
Food	200.0	193.2r	149.6	+3.5	+33.7
Housing[1]	103.2	103.2	103.2	0	0
Clothing	146.2	145.0	132.5	+0.8	+10.3
Fuel and light	119.2	117.6	112.1	+1.4	+6.3
Housefurnishings	155.3	154.2	140.2	+0.7	+10.8
Sundries	133.3	132.5	124.6	+0.6	+7.0
Weighted Total	152.4	149.5r	130.1	+1.9	+17.1
Birmingham					
Food	215.9	208.7	153.6	+3.4	+40.6
Housing[1]	105.7	105.7	105.7	0	0
Clothing	153.4	152.3	132.1	+0.7	+16.1
Fuel and light	113.8	112.9	105.6	+0.8	+7.8
Housefurnishings	146.4	146.3	120.6	+0.1	+21.4
Sundries	125.5	124.4	121.6	+0.9	+3.2
Weighted Total	152.0	149.4	128.4	+1.7	+18.4
Boston					
Food	188.0	183.5	140.2	+2.5	+34.1
Housing[1]	104.5	104.5	103.5	0	+1.0
Clothing	141.8	139.8r	128.8	+1.4	+10.1
Fuel and light	129.8	128.4	120.9r	+1.1	+7.4
Housefurnishings	152.9	147.9	127.0	+3.4	+20.4
Sundries	139.9	138.6	127.1r	+0.9	+10.1
Weighted Total	149.7	147.3	126.7r	+1.6	+18.2
Bridgeport					
Food	189.6	183.0	140.6	+3.6	+34.9
Housing[1]	106.5	106.5	106.5	0	0
Clothing	146.9	143.0	128.9r	+2.7	+14.0
Fuel and light	127.9	130.9	122.6	−2.3	+4.3
Housefurnishings	143.7	132.1	127.7	+8.8	+12.5
Sundries	147.0	146.3	127.7	+0.5	+15.1
Weighted Total	151.3	148.6	127.5	+1.8	+18.7
Buffalo					
Food	200.3	194.4r	149.1	+3.0	+34.3
Housing[1]	112.3	112.3	112.3	0	0
Clothing	145.0	141.2	130.3	+2.7	+11.3
Fuel and light	126.2	123.7	115.2	+2.0	+9.5
Housefurnishings	149.4	141.3	130.0	+5.7	+14.9
Sundries	134.8	134.3	126.1r	+0.4	+6.9
Weighted Total	152.2	149.3	130.5r	+1.9	+16.6
Chattanooga					
Food	219.0	213.7	160.1	+2.5	+36.8
Housing[1]	103.7	103.7	103.7	0	0
Clothing	147.0	147.9r	124.9	−0.6	+17.7
Fuel and light	110.3	107.0	101.8	+3.1	+8.3
Housefurnishings	150.9	134.5	125.5	+12.2	+20.2
Sundries	128.6	128.4	117.8	+0.2	+9.2
Weighted Total	153.7	151.1	128.5	+1.7	+19.6
Chicago					
Food	200.7	199.1r	146.6	+0.8	+36.9
Housing[1]	105.8	105.8	105.8	0	0
Clothing	148.0	145.2	133.5	+1.9	+10.9
Fuel and light	99.3	98.0	95.3r	+1.3	+4.2
Housefurnishings	142.0	138.9	130.4	+2.2	+8.9
Sundries	134.0	133.2r	121.2r	+0.6	+10.6
Weighted Total	149.2	148.1r	126.1r	+0.7	+18.3
Cincinnati					
Food	196.5	191.7r	145.1r	+2.5	+35.4
Housing[1]	100.9	100.9	100.9	0	0
Clothing	157.8	151.4	139.7	+4.2	+13.0
Fuel and light	112.6	110.6	106.5	+1.8	+5.7
Housefurnishings	137.6	132.8	125.2	+3.6	+9.9
Sundries	138.8	129.4	120.9	+7.3	+14.8
Weighted Total	151.7	146.5r	126.9r	+3.5	+19.5
Cleveland					
Food	192.9	186.0	140.9r	+3.7	+36.9
Housing[1]	109.7	109.7	109.7	0	0
Clothing	158.8	154.4r	136.8	+2.8	+16.1
Fuel and light	112.1	110.4	105.3	+1.5	+6.5
Housefurnishings	151.3	144.6	126.9	+4.6	+19.2
Sundries	140.7	139.0	129.6	+1.2	+8.6
Weighted Total	151.4	147.9	128.3	+2.4	+18.0
Dallas					
Food	205.5	197.3	149.3	+4.2	+37.6
Housing[1]	105.6	105.6	105.6	0	0
Clothing	155.5	150.7	130.8	+3.2	+18.9
Fuel and light	89.1	89.1	89.1	0	0
Housefurnishings	145.1	142.4	130.8	+1.9	+10.9
Sundries	134.3	133.8	126.9	+0.4	+5.8
Weighted Total	148.5	145.4	127.5	+2.1	+16.5
Dayton					
Food	190.3	184.2	145.4	+3.3	+30.9
Housing[1]	106.4	106.4	105.9	0	+0.5
Clothing	147.3	143.6r	126.4	+2.6	+16.5
Fuel and light	114.8	112.5	108.1	+2.0	+6.2
Housefurnishings	155.1	153.9	134.5r	+0.8	+15.3
Sundries	134.0	131.7	123.4	+1.7	+8.6
Weighted Total	147.6	144.5	126.9r	+2.1	+16.3
Denver					
Food	201.3	197.2	144.6	+2.1	+39.2
Housing[1]	105.5	105.5	105.6	0	−0.1
Clothing	151.3	144.7	130.1	+4.6	+16.3
Fuel and light	94.4	98.6	94.5	−4.3	−0.1
Housefurnishings	144.6	140.5	127.2	+2.9	+13.7
Sundries	131.5	130.2	120.4	+1.0	+9.2
Weighted Total	148.7	146.4	124.9	+1.6	+19.1
Des Moines					
Food	189.6	184.4	136.4	+2.8	+39.0
Housing[1]	105.3	105.3	105.3	0	0
Clothing	161.6	160.0	139.1	+1.0	+16.2
Fuel and light	127.3	123.9	122.3	+2.7	+4.1
Housefurnishings	153.4	147.4	125.9	+4.1	+21.8
Sundries	131.3	130.2r	122.0	+0.8	+7.6
Weighted Total	146.6	144.2r	125.1	+1.7	+17.2
Detroit					
Food	193.2	192.0r	150.6	+0.6	+28.3
Housing[1]	107.0	107.0	107.0	0	0
Clothing	154.2	150.8	136.4	+2.3	+13.0
Fuel and light	122.4	118.4	111.7r	+3.4	+9.6
Housefurnishings	149.3	147.1	126.6	+1.5	+17.9
Sundries	149.3	147.9r	134.5r	+0.9	+11.0
Weighted Total	152.7	151.2r	132.2r	+1.0	+15.5

[1]Rents surveyed twice annually, June 15 and December 15. It is assumed no change has occurred since December 15, 1946. rRevised

CONSUMERS' PRICE INDEXES FOR SIXTY CITIES—Continued

Source: THE CONFERENCE BOARD

NOTE: *These indexes do NOT show intercity differences in price level or standards of living. They show only changes in consumers' prices in each city, which changes may be compared with those for other cities.*

City	Index Numbers Jan., 1939 = 100			Percentage Changes	
	Mar. 1947	Dec. 1946	Mar. 1946	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947
Duluth					
Food	191.2	184.5	140.5	+3.6	+36.1
Housing[1]	100.2	100.2	100.2	0	0
Clothing	158.8	155.7	139.5	+2.0	+13.8
Fuel and light	119.0	116.8	109.9	+1.9	+8.3
Housefurnishings	163.2	153.8	142.2	+6.1	+14.8
Sundries	135.1	134.3	125.7r	+0.6	+7.5
Weighted Total	150.2	146.9	127.5r	+2.2	+17.8
Erie, Pa.					
Food	203.0	201.2	153.3	+0.9	+32.4
Housing[1]	110.2	110.2	110.2	0	0
Clothing	170.7	166.1r	149.9	+2.8	+13.9
Fuel and light	128.9	127.3r	119.7	+1.3	+7.7
Housefurnishings	146.6	143.8	132.0	+1.9	+11.1
Sundries	145.1	144.5	134.2r	+0.4	+8.1
Weighted Total	158.0	156.5r	135.8	+1.0	+16.3
Fall River					
Food	183.0	180.1	138.5	+1.6	+32.1
Housing[1]	104.3	104.3	104.3	0	0
Clothing	163.6	158.5	137.8	+3.2	+18.7
Fuel and light	124.3	122.8	116.8	+1.2	+6.4
Housefurnishings	133.9	132.5	120.8	+1.1	+10.8
Sundries	134.6	133.0	127.1r	+1.2	+5.9
Weighted Total	147.6	145.5	127.0r	+1.4	+16.2
Front Royal, Va.					
Food	230.6	231.8r	164.8	−0.5	+39.9
Housing[1]	107.3	107.3	107.3	0	0
Clothing	164.3	162.9r	147.6	+0.9	+11.3
Fuel and light	131.6	127.7	115.9	+3.1	+13.5
Housefurnishings	138.9	138.9r	132.4	0	+4.9
Sundries	134.3	132.4	127.0	+1.4	+5.7
Weighted Total	156.6	155.9r	134.3	+0.4	+16.6
Grand Rapids					
Food	204.4	199.6	152.5	+2.4	+34.0
Housing[1]	106.5	106.5	106.5	0	0
Clothing	154.7	153.9	140.3	+0.5	+10.3
Fuel and light	125.8	121.0	114.0	+4.0	+10.4
Housefurnishings	158.4	163.4	144.9	−3.1	+9.3
Sundries	135.8	135.0	128.1r	+0.6	+6.0
Weighted Total	153.3	151.3	132.5r	+1.3	+15.7
Green Bay, Wis.					
Food	187.7	186.2	140.2	+0.8	+33.9
Housing[1]	106.8	106.8	102.8	0	+3.9
Clothing	164.3	159.3	140.0	+3.1	+17.4
Fuel and light	111.5	111.0	105.0r	+0.5	+6.2
Housefurnishings	147.6	145.9	129.9	+1.2	+13.6
Sundries	130.4	130.3	122.2	+0.1	+6.7
Weighted Total	146.7	145.5	125.5r	+0.8	+16.9
Houston					
Food	205.0	197.3	144.8	+3.9	+41.6
Housing[1]	105.7	105.7	105.7	0	0
Clothing	146.7	144.4	129.7	+1.6	+13.1
Fuel and light	81.8	81.8	81.8r	0	0
Housefurnishings	136.2	127.6	116.4	+6.7	+17.0
Sundries	130.0	128.3	123.6r	+1.3	+5.2
Weighted Total	146.2	142.7	124.7r	+2.5	+17.2
Huntington, W. Va.					
Food	208.4	204.2r	149.3	+2.1	+39.6
Housing[1]	111.7	111.7	111.7	0	0
Clothing	149.0	146.0	129.1	+2.1	+15.4
Fuel and light	100.0	100.0	100.0	0	0
Housefurnishings	152.2	152.3	133.2	−0.1	+14.3
Sundries	136.1	135.0	128.8	+0.8	+5.7
Weighted Total	155.9	153.8r	131.7	+1.4	+18.4
Indianapolis					
Food	206.3	205.1	155.9	+0.6	+32.3
Housing[1]	107.9	107.9	107.9	0	0
Clothing	146.4	143.1	127.8	+2.3	+14.6
Fuel and light	121.1	117.6	114.5	+3.0	+5.8
Housefurnishings	146.5	144.6r	127.4	+1.3	+15.0
Sundries	140.6	140.0r	129.8r	+0.4	+8.3
Weighted Total	153.8	152.5r	132.3r	+0.9	+16.3
Kansas City, Mo.					
Food	188.3	182.0	136.2	+3.5	+38.3
Housing[1]	105.5	105.5	105.5	0	0
Clothing	153.2	148.3	135.3	+3.3	+13.2
Fuel and light	117.5	114.5	113.3	+2.6	+3.7
Housefurnishings	132.6	130.3	123.5	+1.8	+7.4
Sundries	137.6	135.9	128.2	+1.3	+7.3
Weighted Total	146.9	143.7	126.3	+2.2	+16.3
Lansing					
Food	220.8	220.2	173.5	+0.3	+27.3
Housing[1]	98.0	98.0	98.0	0	0
Clothing	149.4	145.0	128.9	+3.0	+15.9
Fuel and light	115.2	111.1	106.3r	+3.7	+8.4
Housefurnishings	156.4	154.9r	137.2	+1.0	+14.0
Sundries	144.3	138.2	131.5	+4.4	+9.7
Weighted Total	155.1	152.3r	134.4r	+1.8	+15.4
Los Angeles					
Food	199.6	198.3r	153.4	+0.7	+30.1
Housing[1]	106.2	106.2	106.2	0	0
Clothing	142.7	138.9	126.4	+2.7	+12.9
Fuel and light	93.4	93.4	93.4	0	0
Housefurnishings	132.7	132.8r	121.1	−0.1	+9.6
Sundries	132.7	131.2r	124.6	+1.1	+6.5
Weighted Total	147.3	146.0r	128.6	+0.9	+14.5
Louisville					
Food	209.3	202.3r	146.7	+3.5	+42.7
Housing[1]	103.9	103.9	103.9	0	0
Clothing	148.4	143.3r	131.7	+3.6	+12.7
Fuel and light	124.8	122.6	114.4	+1.8	+9.1
Housefurnishings	160.0	158.6r	131.2	+0.9	+22.0
Sundries	139.6	138.2	122.7r	+1.0	+13.8
Weighted Total	158.2	154.8r	128.6r	+2.2	+23.0
Macon					
Food	206.6	199.1	150.6	+3.8	+37.2
Housing[1]	114.0	114.0	114.0	0	0
Clothing	152.9	150.7r	132.3	+1.5	+15.6
Fuel and light	107.0	106.0	101.5	+0.9	+5.4
Housefurnishings	149.4	147.1	138.0	+1.6	+8.3
Sundries	128.7	128.1	123.9	+0.5	+3.9
Weighted Total	153.6	150.7r	131.4	+1.9	+16.9
Meadville, Pa.					
Food	198.8	194.8	147.5	+2.1	+34.8
Housing[1]	110.8	110.8	110.8	0	0
Clothing	142.1	138.4r	121.3	+2.7	+17.1
Fuel and light	117.9	117.9	114.2	0	+3.2
Housefurnishings	147.2	148.0	138.1	−0.5	+6.6
Sundries	139.9	134.5	126.4	+4.0	+10.7
Weighted Total	150.2	147.2r	128.2	+2.0	+17.2
Memphis					
Food	219.6	214.1	158.0	+2.6	+39.0
Housing[1]	108.4	108.4	108.4	0	0
Clothing	157.7	156.2	139.2	+1.0	+13.3
Fuel and light	103.7	103.1	99.3	+0.6	+4.4
Housefurnishings	149.7	147.0	130.8	+1.8	+14.4
Sundries	121.6	121.3	114.5	+0.2	+6.2
Weighted Total	150.9	148.9	128.2	+1.3	+17.7

[1]Rents surveyed twice annually, June 15 and December 15. It is assumed no change has occurred since December 15, 1946. rRevised

CONSUMERS' PRICE INDEXES FOR SIXTY CITIES—Continued

Source: THE CONFERENCE BOARD

NOTE: *These indexes do NOT show intercity differences in price level or standards of living. They show only changes in consumers' prices in each city, which changes may be compared with those for other cities.*

City	Index Numbers Jan., 1939=100			Percentage Changes	
	Mar. 1947	Dec. 1946	Mar. 1946	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947
Milwaukee					
Food	195.3	185.8r	146.0	+5.1	+33.8
Housing[1]	103.5	103.5	103.4	0	+0.1
Clothing	163.3	163.3r	141.3	0	+15.6
Fuel and light	118.0	116.6	111.3r	+1.2	+6.0
Housefurnishings	155.6	155.1r	130.0	+0.3	+19.7
Sundries	132.1	131.8	125.9	+0.2	+4.9
Weighted Total	148.6	145.5r	128.0r	+2.1	+16.1
Minneapolis					
Food	207.2	207.0	152.9	+0.1	+35.5
Housing[1]	103.7	103.7	103.7	0	0
Clothing	156.4	153.2r	132.6	+2.1	+17.9
Fuel and light	112.0	110.5r	104.4r	+1.4	+7.3
Housefurnishings	154.7	147.9	126.5	+4.6	+22.3
Sundries	134.1	133.2	123.2r	+0.7	+8.8
Weighted Total	151.9	150.8r	128.1r	+0.7	+18.6
Muskegon					
Food	233.2	225.4	169.6	+3.5	+37.5
Housing[1]	115.2	115.2	115.2	0	0
Clothing	147.0	143.0	131.0	+2.8	+12.2
Fuel and light	134.2	129.5	120.2	+3.6	+11.6
Housefurnishings	146.0	131.9	122.0	+10.7	+19.7
Sundries	136.5	134.1	123.1	+1.8	+10.9
Weighted Total	161.2	156.6	135.2	+2.9	+19.2
Newark					
Food	184.3	177.4	145.4	+3.9	+26.8
Housing[1]	101.4	101.4	101.4	0	0
Clothing	149.1	146.3r	128.0	+1.9	+16.5
Fuel and light	105.1	105.0	104.8	+0.1	+0.3
Housefurnishings	166.1	159.9r	134.7	+3.9	+23.3
Sundries	128.0	127.7	120.2r	+0.2	+6.5
Weighted Total	145.5	142.5	126.3r	+2.1	+15.2
New Haven					
Food	171.8	167.7	137.2	+2.4	+25.2
Housing[1]	105.3	105.3	105.3	0	0
Clothing	155.8	154.7	136.2	+0.7	+14.4
Fuel and light	117.5	117.5	110.5	0	+6.3
Housefurnishings	143.7	138.3	128.6	+3.9	+11.7
Sundries	119.9	118.9r	111.5	+0.8	+7.5
Weighted Total	137.9	136.0r	121.4	+1.4	+13.6
New Orleans					
Food	197.6	203.8	150.1r	-3.0	+31.6
Housing[1]	110.6	110.6	110.6	0	0
Clothing	149.1	147.3	135.3	+1.2	+10.2
Fuel and light	84.5	84.5r	85.9	0	-1.6
Housefurnishings	151.8	148.2	124.8	+2.4	+21.6
Sundries	130.0	125.7	123.1	+3.4	+5.6
Weighted Total	152.9	153.7r	130.6	-0.5	+17.1
New York					
Food	188.0	184.3	142.0	+2.0	+32.4
Housing[1]	100.8	100.8	100.8	0	0
Clothing	152.2	147.5	134.7	+3.2	+13.0
Fuel and light	111.2	110.6	108.4	+0.5	+2.6
Housefurnishings	152.1	148.2	134.1	+2.6	+13.4
Sundries	138.0	137.8r	123.7	+0.1	+11.6
Weighted Total	148.7	146.7r	126.2	+1.4	+17.8
Omaha					
Food	209.6	208.7	150.3	+0.4	+39.5
Housing[1]	100.6	100.6	100.6	0	0
Clothing	151.2	147.3	130.5	+2.6	+15.9
Fuel and light	118.0	115.9	109.5	+1.8	+7.8
Housefurnishings	164.7	163.4	144.6	+0.8	+13.9
Sundries	133.3	132.5r	127.0	+0.6	+5.0
Weighted Total	151.7	150.5r	129.0r	+0.8	+17.6
Parkersburg, W. Va.					
Food	209.1	197.3	147.9	+6.0	+41.4
Housing[1]	104.2	104.2	104.2	0	0
Clothing	151.5	153.7	124.9	-1.4	+21.3
Fuel and light	100.1	100.1	100.1r	0	0
Housefurnishings	152.7	154.0	133.2	-0.8	+14.6
Sundries	129.5	127.5	117.7	+1.6	+10.0
Weighted Total	156.5	152.1	127.4r	+2.9	+22.8
Philadelphia					
Food	188.1	182.5	142.1	+3.1	+32.4
Housing[1]	102.7	102.7	102.7	0	0
Clothing	148.4	148.1	132.4	+0.2	+12.1
Fuel and light	127.6	123.7r	116.9	+3.2	+9.2
Housefurnishings	146.9	143.8	132.7	+2.2	+10.7
Sundries	135.2	134.7	124.8	+0.4	+8.3
Weighted Total	150.3	147.7	128.1	+1.8	+17.3
Pittsburgh					
Food	193.0	189.2	146.2	+2.0	+32.0
Housing[1]	105.7	105.7	105.7	0	0
Clothing	147.4	146.5	130.8	+0.6	+12.7
Fuel and light	119.0	117.0	112.8r	+1.7	+5.5
Housefurnishings	137.9	136.1	122.6	+1.3	+12.5
Sundries	133.6	132.7	122.2r	+0.7	+9.3
Weighted Total	148.4	146.6	127.2r	+1.2	+16.7
Portland, Ore.					
Food	201.7	196.9	149.1	+2.4	+35.3
Housing[1]	110.0	110.0	110.0	0	0
Clothing	165.3	157.5r	142.3	+5.0	+16.2
Fuel and light	123.9	123.9	124.9	0	-0.8
Housefurnishings	138.2	133.8	122.5	+3.3	+12.8
Sundries	127.2	126.4	116.0	+0.6	+9.7
Weighted Total	151.5	148.7r	128.7	+1.9	+17.7
Providence					
Food	198.4	194.2	149.8	+2.2	+32.4
Housing[1]	103.3	103.3	103.3	0	0
Clothing	151.3	148.4	135.6	+2.0	+11.6
Fuel and light	119.7	118.4	111.9	+1.1	+7.0
Housefurnishings	129.9	128.8	126.7	+0.9	+2.5
Sundries	135.6	132.7	126.3	+2.2	+7.4
Weighted Total	149.7	147.1	129.0	+1.8	+16.0
Richmond					
Food	231.2	224.1	165.7	+3.2	+39.5
Housing[1]	103.4	103.4	103.1	0	+0.3
Clothing	153.6	151.4	131.2	+1.5	+17.1
Fuel and light	112.4	109.9	106.4	+2.3	+5.6
Housefurnishings	152.6	143.2	121.6	+6.6	+25.5
Sundries	124.0	123.5	119.8	+0.4	+3.5
Weighted Total	155.4	152.3	130.7	+2.0	+18.9
Roanoke, Va.					
Food	210.7	206.8r	149.8	+1.9	+40.7
Housing[1]	123.9	123.9	122.4	0	+1.2
Clothing	161.0	160.1	134.5	+0.6	+19.7
Fuel and light	121.6	118.4	110.4	+2.7	+10.1
Housefurnishings	147.2	143.5	125.4	+2.6	+17.4
Sundries	134.7	129.2	122.0	+4.3	+10.4
Weighted Total	157.6	154.3	130.9	+2.1	+20.4
Rochester					
Food	201.2	194.8	151.4	+3.3	+32.9
Housing[1]	103.9	103.9	103.9	0	0
Clothing	158.6	153.3	134.8	+3.5	+17.7
Fuel and light	135.1	132.4r	123.3r	+2.0	+9.6
Housefurnishings	165.8	165.0r	139.1	+0.5	+19.2
Sundries	142.6	142.0	130.9	+0.4	+8.9
Weighted Total	153.3	150.5r	131.1r	+1.9	+16.9

[1]Rents surveyed twice annually, June 15 and December 15. It is assumed no change has occurred since December 15, 1946. rRevised

CONSUMERS' PRICE INDEXES FOR SIXTY CITIES—Continued

Source: THE CONFERENCE BOARD

NOTE: *These indexes do NOT show intercity differences in price level or standards of living. They show only changes in consumers' prices in each city, which changes may be compared with those for other cities.*

City	Index Numbers Jan., 1939=100			Percentage Changes	
	Mar. 1947	Dec. 1946	Mar. 1946	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947
Rockford, Ill.					
Food	206.0	203.6	151.7	+1.2	+35.8
Housing[1]	138.1	138.1	138.1	0	0
Clothing	147.6	146.0r	131.9	+1.1	+11.9
Fuel and light	121.7	119.2r	116.7	+2.1	+4.3
Housefurnishings	148.6	148.1	131.4	+3.8	+13.1
Sundries	136.7	128.7	124.4	+6.2	+9.9
Weighted Total	158.4	154.8r	135.7	+2.3	+16.7
Sacramento					
Food	201.3	198.7	150.4	+1.3	+33.8
Housing[1]	105.7	105.7	105.7	0	0
Clothing	162.6	158.2	143.8	+2.8	+13.1
Fuel and light	77.0	76.8	77.5	+0.3	−0.6
Housefurnishings	161.8	158.5	142.1	+2.1	+13.9
Sundries	130.7	129.6r	124.6	+0.8	+4.9
Weighted Total	149.6	147.8r	129.4	+1.2	+15.6
St. Louis					
Food	194.4	186.9	146.8	+4.0	+32.4
Housing[1]	105.8	105.8	105.8	0	0
Clothing	145.5	144.4r	130.3	+0.8	+11.7
Fuel and light	126.7	126.0r	118.1	+0.6	+7.3
Housefurnishings	143.7	140.3r	119.1	+2.4	+20.7
Sundries	127.8	126.8	120.8	+0.8	+5.8
Weighted Total	148.6	145.5	127.6	+2.1	+16.5
St. Paul					
Food	206.6	206.0	143.9	+0.3	+43.6
Housing[1]	100.9	100.9	100.9	0	0
Clothing	141.5	137.3	127.0r	+3.1	+11.4
Fuel and light	115.8	113.8r	109.4	+1.8	+5.9
Housefurnishings	162.2	152.7	129.1	+6.2	+25.6
Sundries	132.0	131.1	122.4r	+0.7	+7.8
Weighted Total	149.8	148.3r	124.7r	+1.0	+20.1
San Francisco - Oakland					
Food	200.0	198.1	149.3	+1.0	+34.0
Housing[1]	100.9	100.9	100.9	0	0
Clothing	154.3	148.6r	135.0	+3.8	+14.3
Fuel and light	88.1	88.1	86.2r	0	+2.2
Housefurnishings	151.4	142.5r	125.1	+6.2	+21.0
Sundries	138.6	137.7r	129.3r	+0.7	+7.2
Weighted Total	152.3	150.4r	129.8r	+1.3	+17.3
Seattle					
Food	200.2	204.0	153.9	−1.9	+30.1
Housing[1]	106.5	106.5	106.5	0	0
Clothing	144.7	143.6	128.8	+0.8	+12.3
Fuel and light	116.6	116.0r	111.3	+0.5	+4.8
Housefurnishings	146.7	144.4	122.2	+1.6	+20.0
Sundries	125.8	124.2	122.1	+1.3	+3.0
Weighted Total	148.5	149.0r	129.7	−0.3	+14.5
Spokane					
Food	195.6	194.8	146.2	+0.4	+33.8
Housing[1]	102.0	102.0	102.0	0	0
Clothing	144.5	139.4	124.7	+3.7	+15.9
Fuel and light	142.7	137.3r	134.9	+3.9	+5.8
Housefurnishings	136.4	138.6	132.7	−1.6	+2.8
Sundries	132.3	130.8	124.3	+1.1	+6.4
Weighted Total	150.1	148.4	129.4	+1.1	+16.0
Syracuse					
Food	194.5	191.8	146.8	+1.4	+32.5
Housing[1]	116.3	116.3	116.3	0	0
Clothing	156.0	150.7	134.6	+3.5	+15.9
Fuel and light	133.5	132.1r	123.6r	+1.1	+8.0
Housefurnishings	158.2	150.3r	131.1	+5.3	+20.7
Sundries	124.2	123.3	118.3r	+0.7	+5.0
Weighted Total	148.5	146.4r	128.8r	+1.4	+15.3
Toledo					
Food	199.8	195.2r	149.9	+2.4	+33.3
Housing[1]	113.1	113.1	113.1	0	0
Clothing	152.4	152.7	133.3	−0.2	+14.3
Fuel and light	119.8	116.8	110.1	+2.6	+8.8
Housefurnishings	141.1	140.9	123.0	+0.1	+14.7
Sundries	141.8	139.0	134.0r	+2.0	+5.8
Weighted Total	153.9	151.5	132.9r	+1.6	+15.8
Wausau, Wis.					
Food	208.5	201.3	157.8	+3.6	+32.1
Housing[1]	102.7	102.7	102.7	0	0
Clothing	172.9	168.4r	144.0	+2.7	+20.1
Fuel and light	118.4	117.4	107.7r	+0.9	+9.9
Housefurnishings	145.8	145.8	125.9	0	+15.8
Sundries	129.2	129.0	117.6	+0.2	+9.9
Weighted Total	152.1	149.4	129.0r	+1.8	+17.9
Wilmington, Del.					
Food	187.1	182.5	143.2	+2.5	+30.7
Housing[1]	104.9	104.9	104.9	0	0
Clothing	156.4	151.4r	137.2	+3.3	+14.0
Fuel and light	113.3	112.6	107.0	+0.6	+5.9
Housefurnishings	159.4	148.8	127.0	+7.1	+25.5
Sundries	126.0	124.1	117.6	+1.5	+7.1
Weighted Total	148.8	145.5	126.9	+2.3	+17.3
Youngstown					
Food	207.3	202.8	157.1	+2.2	+32.0
Housing[1]	105.6	105.6	105.6	0	0
Clothing	158.0	158.3r	145.0	−0.2	+9.0
Fuel and light	117.2	113.2	109.4	+3.5	+7.1
Housefurnishings	153.2	151.0	133.2	+1.5	+15.0
Sundries	125.0	123.4	117.8	+1.3	+6.1
Weighted Total	151.2	149.0r	130.9	+1.5	+15.5

[1]Rents surveyed twice annually, June 15 and December 15. It is assumed no change has occurred since December 15, 1946. r Revised

PERCENTAGE CHANGES IN INDEXES FOR SIX CITIES

	Weighted Total		Food		Housing[1]		Clothing		Fuel and Light		Housefurnishings		Sundries	
	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947	Dec. 1946 to Mar. 1947	Mar. 1946 to Mar. 1947
Bellefonte, Pa.	+1.0	*n.a.*	+0.9	*n.a.*	0	*n.a.*	+0.9	*n.a.*	0	*n.a.*	+4.4	*n.a.*	+1.2	*n.a.*
Evansville, Ind.	+1.8	+15.8	+3.8	+35.7	0	0	−0.1	+9.1	+1.2	+4.2	+1.7	+18.1	+1.0	+4.8
International Falls, Minn.	+2.0	+17.8	+1.0	+37.2	0	+8.3	+4.8	+17.6	+1.0	+6.0	−0.1	+9.5	+3.3	+5.9
Joliet, Ill.[2]	+3.0	+18.3	+3.3	+32.9	0	0	+2.0	+10.1	+2.6	+7.2	+0.2	+10.1	+4.6	+16.5
Lewistown, Pa.	+2.1	+16.7	+2.9	+30.0	0	0	+2.9	+9.4	0	+6.2	+0.4	+10.9	+2.1	+11.1
Trenton, N. J.	+1.4	+16.9	+3.7	+32.9	0	0	−1.8	+12.2	+0.9	+4.3	−5.0	+5.2	+0.8	+6.9

[1]Rents surveyed twice annually, June 15 and December 15. It is assumed no change has occurred since December 15, 1946.
[2]Includes Lockport and Rockdale.
n.a. Not available.

Earnings and Hours in Gas and Electricity

JANUARY, 1947, brought the highest earnings ever recorded for workers in the gas and electricity utilities, according to THE CONFERENCE BOARD's semiannual survey of earnings and hours in these industries. Hourly and weekly returns reached new peak levels in both industries even though the average work week of the electricity worker was slightly shorter than in the previous survey of last June.

GAS

The hourly earnings of the men engaged in the manufacture and distribution of gas were increased 7% from June, 1946, to January of this year. They averaged $1.205 in the latter month, which is higher than in any previous survey. Since their work week was also increased—in January averaging 2.5 hours, or 6.1%, more than in June—their weekly earnings rose 13.2% in the seven months. The rise in hourly earnings was not, of course, owing entirely to the longer hours

The utility companies, like manufacturing companies, have granted many wage-rate increases in recent months. Over the year since January, 1946, the hourly earnings of these workers in the gas industry have risen 11%, although their working hours were 0.9% shorter this January than the year before. The average weekly return of $53.33 shown by the current survey was 9.4% greater than in last January.

The increase in the proportion of unskilled workers which was noted in the previous survey continued in January, with 21.1% of all the workers classified as unskilled. In June, 1946, 20.5% were in this group, while in the first month of last year the unskilled workers were only 17.6% of the total number. Hourly earnings of unskilled workers rose even more than did those of all workers combined: the January, 1947, average of $.984 being 8.6% higher than that of last June, while the skilled workers' hourly earnings in January were 6.8% greater than in the previous survey. In both these months, the skilled men worked more hours in a week than the unskilled, and for each group the work week was lengthened over the seven-month period. Both classes found their average weekly earnings in January more than 13% greater than last June.

While the four regions of the country all reported higher hourly earnings in the gas industry this January than last June, the increases in the East and South were much smaller than those in the other regions. The earnings of the workers in the East and the South rose 3.5% and 3.9%, respectively, but in the Middle West the increase amounted to 12.5% and in the Far West to 8.7%.

These changes in hourly earnings followed the general pattern of the increases in the length of the work week. Hours were lengthened in all four regions,

TABLE 1: EARNINGS AND HOURS IN PRODUCTION AND DISTRIBUTION OF GAS AND ELECTRICITY BY JOB CLASSIFICATION, JUNE, 1946, AND JANUARY, 1947

Source: THE CONFERENCE BOARD

Date	GAS						ELECTRICITY					
	UNSKILLED			SEMI-SKILLED AND SKILLED			UNSKILLED			SEMI-SKILLED AND SKILLED		
	Average Hourly Earnings	Average Weekly Earnings	Average Hours per Week per Wage Earner	Average Hourly Earnings	Average Weekly Earnings	Average Hours per Week per Wage Earner	Average Hourly Earnings	Average Weekly Earnings	Average Hours per Week per Wage Earner	Average Hourly Earnings	Average Weekly Earnings	Average Hours per Week per Wage Earner
INSIDE PRODUCTION												
June, 1946	$.945	$38.55	40.8	$1.170	$48.50	41.5	$.978	$40.18	41.1	$1.309	$54.46	41.6
January, 1947	1.064	44.99	42.3	1.257	55.24	44.0	1.030	43.45	42.2	1.387	58.59	42.3
INSIDE MAINTENANCE												
June, 1946	$.947	$37.22	39.3	$1.248	$51.08	40.9	$.968	$38.64	39.9	$1.368	$57.19	41.8
January, 1947	.982	39.47	40.2	1.300	56.80	43.7	1.018	41.40	40.7	1.400	59.62	42.6
OUTSIDE												
June, 1946	$.878	$34.53	39.3	$1.159	$49.05	42.3	$.886	$37.36	42.2	$1.350	$59.61	44.2
January, 1947	.951	39.26	41.3	1.246	56.03	45.0	.914	37.19	40.7	1.357	57.36	42.3

NOTE: This table brings up to date figures published in *The Conference Board Management Record*, October, 1946, p. 340.

TABLE 2: EARNINGS AND HOURS IN PRODUCTION AND DISTRIBUTION OF GAS AND ELECTRICITY, BY SKILL, JUNE, 1946 AND JANUARY, 1947

Source: The Conference Board

Date and Region	All Wage Earners							Unskilled					Semi-skilled and Skilled				
	Average Hourly Earnings	Average Weekly Earnings	Average Hours per Week per Wage Earner	Indexes, 1923=100				Average Hourly Earnings	Average Weekly Earnings	Average Hours per Week per Wage Earner	Indexes, 1923=100		Average Hourly Earnings	Average Weekly Earnings	Average Hours per Week per Wage Earner	Indexes, 1923=100	
				Hourly Earnings		Weekly Earnings					Hourly Earnings	Weekly Earnings				Hourly Earnings	Weekly Earnings
				Actual	Real	Actual	Real										
GAS																	
June, 1946																	
United States	$1.126	$47.13	41.8	210.9	194.9	181.1	167.4	$.906	$35.96	39.7	201.8	173.1	$1.180	$49.28	41.8	205.6	168.4
East	1.159	47.58	41.0	a	a	a	a	.926	37.47	40.5	a	a	1.208	49.72	41.2	a	a
South	1.018	41.95	41.2	a	a	a	a	.747	28.68	38.4	a	a	1.125	47.71	42.4	a	a
Middle West	1.113	46.30	41.6	a	a	a	a	.948	37.14	39.2	a	a	1.155	48.82	42.3	a	a
Far West	1.112	47.69	42.9	a	a	a	a	.923	37.12	40.2	a	a	1.170	51.17	43.8	a	a
January, 1947																	
United States	1.205	53.33	43.8	225.7	183.5	204.9	166.6	.984	40.73	41.4	219.2	196.1	1.260	55.95	44.4	219.5	191.2
East	1.199	50.66	42.3	a	a	a	a	.989	40.89	41.3	a	a	1.243	52.79	42.5	a	a
South	1.058	44.31	41.9	a	a	a	a	.793	30.48	38.4	a	a	1.194	52.40	43.9	a	a
Middle West	1.252	57.51	45.9	a	a	a	a	1.076	45.23	42.0	a	a	1.291	60.56	46.9	a	a
Far West	1.209	57.70	47.7	a	a	a	a	.985	45.62	46.3	a	a	1.299	62.70	48.3	a	a
ELECTRICITY																	
June, 1946																	
United States	$1.277	$54.84	42.4	209.3	193.4	185.5	171.4	$.935	$38.59	41.3	196.0	187.9	$1.339	$57.11	42.7	210.2	180.0
East	1.330	57.23	43.0	a	a	a	a	.988	42.57	43.1	a	a	1.374	59.12	43.0	a	a
South	1.133	48.19	42.5	a	a	a	a	.799	32.55	40.8	a	a	1.239	53.40	43.1	a	a
Middle West	1.297	53.69	41.4	a	a	a	a	1.029	41.30	40.1	a	a	1.345	55.96	41.6	a	a
Far West	1.351	58.97	43.6	a	a	a	a	1.029	42.34	41.1	a	a	1.397	61.50	44.0	a	a
January, 1947																	
United States	1.315	56.36	42.1	215.6	175.3	190.7	155.0	.974	40.10	41.2	204.2	195.2	1.378	58.33	42.3	216.3	183.9
East	1.347	55.57	41.3	a	a	a	a	1.021	41.82	41.0	a	a	1.387	57.29	41.3	a	a
South	1.171	50.19	42.8	a	a	a	a	.822	33.72	41.0	a	a	1.284	55.82	43.5	a	a
Middle West	1.369	58.14	42.5	a	a	a	a	1.104	45.66	41.4	a	a	1.418	60.47	42.7	a	a
Far West	1.418	62.98	44.4	a	a	a	a	1.095	46.44	42.4	a	a	1.465	65.50	44.7	a	a

Note: This table brings up to date figures published in *The Conference Board Management Record*, October, 1946, p. 341. a1923 data not available.

but only 3.2% in the East and 1.7% in the South. The workers in the Middle West put in 10.3% more hours a week in January than last June and in the Far West the work week was increased 11.2%.

ELECTRICITY

Workers engaged in the generation and distribution of electricity have, in each of these semiannual surveys, received higher hourly earnings than the men in the other utility group. In January, those in the electricity industry averaged $1.315 for an hour's work, 11 cents more than the average for the gas workers, and 3% more than the June, 1946, average in their own industry. However, their working hours were decreased 0.3 hour, or 0.7% from June, 1946, to January, 1947, while the workers in the gas industry worked longer hours in January than last June. Weekly earnings in the electricity industry were somewhat higher at the time of this survey than in the last. The January average was $56.36, an increase of 2.8% from the previous figure.

The hourly and weekly earnings of both the skilled and unskilled workers were increased from last June to January of this year. The increase in the hourly earnings of the unskilled men amounted to 4.2% and in their weekly earnings to 3.9%; the corresponding increases for the skilled workers were 2.9% and 2.1%. Working hours were cut in each group but the unskilled men worked only 0.1 hour less a week in January than last June and the skilled 0.4 hour less.

The breakdown of the data by geographic regions reveals that the higher hourly earnings were general throughout the country, the increases between the averages in the two surveys ranging from 1.3% in the East to 5.6% in the Middle West. The decrease in the length of the work week in the country as a whole was owing entirely to the 4% reduction in the hours of the workers in the East, where the average work week in January was only 41.3 hours—shorter than in any of the other three regions. Because of this cut in working hours, weekly earnings in the East declined from June to January. In all the rest of the country, weekly earnings were increased during this period. The average in the Far West of $62.98 a week was the highest of the four regions and the South's $50.19 was the lowest.

Elizabeth P. Allison
Statistical Division

Company Policies in Employee Education

A summary of addresses delivered before a Round Table conference on this subject at the 285th meeting of the National Industrial Conference Board at the Waldorf-Astoria Hotel on Thursday, March 20, 1947. The meeting was presided over by A. V. MacCullough, Executive Assistant, Vick Chemical Company.

Mr. MacCullough

EMPLOYEE education assumes increased importance in the light of present-day business and social conditions. Perhaps the greatest competitive advantage to be enjoyed by an enterprise lies in the development of its human resources. While I recognize the worth of on-the-job training, I believe that attention should be paid to employee education in a broader sense. There is an increasing recognition that education cannot stop with the school or college and that business and industry must alter their policies to accept a social obligation to provide broad educational opportunities to all employees as long as there is an expressed need for them. Such action would truly tend to make this a land of opportunity.

The irony of the situation is in the fact that while policy-making officials are providing some educational opportunities for their subordinates, these same policies appear inadequate to fill the needs of management itself. Napoleon is supposed to have said: "There is no such thing as a good or a bad regiment, but there is such a thing as a good or a bad colonel." The development of leadership power still is a timely and crucial theme. Leadership is based upon superior powers to think, to do, and to feel.

Many of us are occupying positions for which our training has been inappropriate. If I should ask how many of you were trained in school for the responsibilities which are yours today, there might be only a few hands raised in this entire group. You were, in all likelihood, trained to work with things as a chemist, a craftsman, or an accountant, yet there would be many of you today who have less need for that training than you have for help in areas such as management tools, human relations, and logical thinking. Probably we would find that the amount of training time in these areas is in inverse ratio to the demands of your positions. As yet the executive is expected to learn the real "know-how" of management from the costly and unsystematic trial and error effort of everyday experience.

Management is a moral act, for its products are social as well as economic. If business or industry wish more freedom, they must indicate their willingness to develop men as well as things and services. A major contribution to democracy lies in this direction. The narrow concept of training, that is, the special coaching designed only to make a more efficient workman, must be expanded to take in many other aspects of education. Management must see itself as a dynamic social force capable of building the type of society in which free enterprise can flourish.

The time is ripe for educational statesmen within management to expand existing policies in this vital field.

Principles and Problems of Employee Education

H. Frederick Willkie, Vice President

Joseph E. Seagram and Sons

IT would be a great convenience if we could assume at once that everyone agrees on the purpose and meaning of employee education. Indeed I would be gratified beyond measure if I thought industrialists generally believed in employee education. However, my experience during the last few years talking on this subject has made me cautious about taking for granted a tacit acceptance in this field.

The primary purpose of educating employees is to make them more effective—that is industrial education in terms of purpose. If we are concerned simply with refining existing methodology in crafts, manual labor, clerical labor, and supervision, then we can stop with ordinary job training; history will show soon enough whether our understanding of free enterprise capitalism has been clear enough to give that way of life enough vitality to compete with other systems.

MORE THAN JOB TRAINING

But job training is a lesser part of the whole concept of education. Our personnel problems in industry do not seem to rise from a lack of skills and job experience. They arise rather from conflicting ideas of morality, behavior, and social responsibility. We do not have to look far into grievances, strike threats, and working conditions subject to collective bargaining to find that there is something amiss in the machinery of human relations.

If a machine or a process has gone awry, we stop the machine or shut down the plant until designers, engineers, or maintenance personnel can get at the trouble to correct it. Or, if wear and depreciation are

setting in we do not hesitate to make both expenditures and investments adequate to the expected loss of efficiency or productivity.

With man and his problems, however, it is a different case. When a man shows signs of wear, obsolescence or general inefficiency, we tend to become emotional. Either we provide for his retirement or we down-grade his job, or we drop him altogether. Or assuming he has committed an infraction of company rules, we act under emergency and righteously—not rightfully—we fire him.

If an expensive machine gets out of hand we don't simply haul it away from the plant. We get to work on it so that it will be returned to productive service. A machine can't break a rule, but it can cause just as much trouble as a single infracted regulation. The difference between a man and a machine in this particular is that the breakdown of one milling machine, for example, doesn't transmit itself to the rest of the machines in a parallel battery. But one broken rule by an employee may spread like epidemic to the others. We take account of this when we reprimand, punish, or release the offender.

NOT A MACHINE

Man has a mind and a conscience and is expected to use both of them in productive work no matter what may be his trade. Yet most of us do not behave in industrial operations as if we really depended on this mind and this conscience. We require their services but we do not support their growth and maintenance. While we properly differentiate men and machines, we make less adequate economic provision for the former than the latter. I am not now talking about moral obligation between employer and employee, but about the economic protection of business.

During the war, many investors, industrialists, and accountants learned new angles about the relative values of cost and capitalization. They learned them through necessity because of war contracts and federal tax methods. They learned to reorient their cost accounting systems to better advantage. Some of it was expedient, some of it was good business. Correspondingly, employers learned a few things about personnel relations—they loosened up on their practices wherever the excess-profits tax made it economically easy to do so. Insurance plans grew. Hospitalization and family coverage were added. Pension, suggestion, and incentive systems were adopted. Sanitation and recreational facilities came into being. Training-within-industry programs and labor-management committees, both government sponsored, were widely put into practice.

Only one thing was generally neglected—the education of the mind and conscience! Take all the social security and labor practices we know today, arrange them together in the best context possible and still they will not answer the basic problems of industrial peace and productivity.

It is my conviction that from the time a man takes up his industrial job, whether he is from grade school, high school, trade school, or college, he starts downhill mentally and morally, and, in the long run, physically and economically. If this is not so, why should we have to have public and private social security, workmen's compensation, unemployment insurance taxation, and the like? These things are not characteristically "free enterprise," since they protect, in some measure, but do not promote the individual.

The most appalling industrial disease as yet unexplored is the atrophy of man! If I do not use my hand or my limb I will surely lose the power to use it. And if I do not use my brain and my conscience, I will not be able to call upon them when the occasion arises. The most serious blame to be placed on industry and labor is that neither of them has provided the opportunities for the employee to preserve and develop these two most precious possessions. The blame must also rest upon government for fostering and promoting this deadly atrophy by a program of mass protection and the removal of opportunity and incentive for individual struggle. Plants and animals and people do not grow by inaction. They strengthen and develop resistance through vigorous growth. And a corollary observation is that trees generally die from their tops—the root system remains long after. Ancient buildings—and modern factories, for that matter—crumble from faulty roofs; the foundations remain for centuries. Man fails from vacancies in the head—his wrecked body fills our charity institutions, slums, and jails.

A PAYING INVESTMENT

Education is the final answer to industrial society, since the mind and the body have a tremendous advantage over the machine: they are renewable biologically and psychologically. For the same reason they require maintenance *and investment.* When people ask me how they can afford to make educational facilities available to their employees, I reply with two other questions:

> "How can you afford to maintain and renew the machines in your plant?"
>
> "What other way than education can you suggest for vitalizing and renewing mental powers?"

Again, I am told—"Oh, you're in a luxury business where material costs are more significant than the cost of labor. You can afford to make education easy for your employees. How about our business where two cents an hour makes the difference in the competitive sales price of the product?"

To them I point out that they are far more vulnerable than I, more dependent on the quality of prod-

uct their people turn out. Their investment, therefore, in the tools of intelligence is correspondingly important. They are the very persons who need most of all the full capacities and ingenuities of all their people! Then they tell me they think they'd better spend their efforts and funds on some standard incentive system. Well and good. If properly operated, many incentive plans will jack up morale and interest by their objective appeals. But at some point they stop producing results, since they are predicated on motivation rather than creation. An outside influence may render them less effective, as for example, industry-wide collective bargaining, trade restrictions, or federal income taxes. I have found incentive systems unduly vulnerable.

GILT-EDGE INCENTIVE

But, you say, isn't education an incentive system in the last analysis? Yes, it is a gilt-edge one. And what sets it apart from others is its creative, self-renewing action. It is conducted with purpose, with recreational freshness, and with a readily apparent progression. It provides the answer to boredom from daily routine that is the bane of conventional industrial work. More than this, it makes the job grow with the man and this is a direct economic benefit.

There are, of course, many difficult problems to meet in adopting a broad educational program. The most serious is gaining the acceptance and cooperation of employees long removed from academic pursuits or those who have experienced only elementary education. For this very considerable group, a good start can be made by correlating job training with safety, first aid and sanitation, working gradually through available industrial films to community activities and thence to cultural and ideational studies. The principal aim should be to develop consistent thinking habits and logical thought processes.

Each company and each plant face different physical problems as to space, teaching staff, textual material, shift schedules, and the like. But these problems are no more difficult of solution than standard production problems. It is our unfamiliarity with them that accounts for initial resistance and lack of carry-through.

EMPLOYER ATTITUDES SURVEYED

Education requires adaptability of the mind to unfamiliar ideas. It also requires an unusual courage, because exposure to education means reestablishing the learner attitude in the adult mind, which, freed of false self-assurance, must regain a greater and more valid self-assurance in intellectual humility. My experience indicates that the most direct way to accomplish this transformation with employees is to expose them to job rotation at a forcing rate commensurate with their capacities to absorb new experience. A man who has handled a series of unfamiliar jobs acquires an open mind and a world of self-confidence. He learns, moreover, that his fundamental security in industry resides not in a particular craft which may be rendered obsolete overnight by technology, but in his versatility and consistent performance.

A system of job rotation presupposes a good basic technology and an automatic job-training program. It must be predicated on measured progress through an orderly system of related studies leading to predetermined goals.

A field study on employer attitudes toward industrial education is now being conducted by the School of Business at Indiana University. Working from a grant made to the Indiana University Foundation, the school has prepared an extensive interview questionnaire covering every phase of academic and industrial training that might be of concern in formulating a model educational program. Sixty-four interviews with leading Indiana manufacturers have already been completed, providing a vast amount of raw data on employer attitudes. It is too early to draw any conclusions, but two things are apparent. First, employers admit that they have never thought through to logical conclusion the matter of industrial education. Second, they find the subject tremendously interesting. I am sure you will hear a great deal more about this pioneer survey before the year is over, and I shall be glad to arrange for anyone interested to be placed on the mailing list for the completed study.

An After-hours Educational Program

Roy A. Dingman, Vice President
Commonwealth Edison Company

WE HAVE had an after-hours educational program in operation for upwards of thirty years. It has been changed considerably over that period of time. Our present catalogue of courses contains thirty-seven different subjects, offered during the fall, winter, and spring, with the heavy part of the schedule coming in the fall.

Currently fifteen different courses are being given. They are largely on subjects which are not available in the high schools or local colleges and universities or are not available in a form that is readily adapted or absorbed for useful purposes in our business. Some of the titles are public utility accounting, air conditioning, electrical circuits and equipment, steam boilers, turbines and auxiliaries, and relay systems. Business law is also occasionally given.

The educational needs of our employees outside this program are taken care of by a tuition refund system. The courses range from simple descriptive subjects such as elementary electricity to those of college level such as the application of electronics, which is one of

several courses accredited toward a college degree at the Illinois Institute of Technology.

Because of the company's rather concentrated operation, the facilities are all in the downtown general offices. There are four permanent classrooms, and a number of other appropriate rooms that are available for classes as the occasion demands. The classrooms are pretty well equipped with ample demonstration and laboratory gadgets, and the usual visual aids, such as motion pictures and slides.

The bulk of the instructors come from our own organization. They are selected on the basis of the knowledge they have of the specialty that they are to teach, plus an ability to learn sound teaching techniques. They are all management people, and are paid a fee that is comparable to that which is paid in university night-school programs.

Instructors are trained through meetings and personal coaching by the training staff, occasionally supplemented by a course given by a university educational specialist. Rather careful control is exercised over the curriculum and lesson material by having it checked by the training staff.

Considerable emphasis is placed on the ability to make the class worth while at the end of the day, against the competition of other interests that exert a pull at quitting time. There are no tuition or admission fees, although the participants buy their own text material.

ENROLMENT VOLUNTARY

The courses are all on a voluntary basis. Some of them have prerequisites, either of a high-school or college level or previous courses in the program itself. We strive always to obtain a maximum participation by all the class members, and we feel that this is encouraged by the fact that the text material is largely prepared by the instructors in our training group. There are quizzes, homework, and final examinations that lead up to the granting of a certificate which is forwarded to the employee through his executive. A record is kept of the satisfactory completion of courses as a part of the employee's personnel record.

So much for the what and the how of the program. Now, as to the why. The purpose obviously is to provide a means of satisfying what we believe is a natural desire to be equipped educationally to get ahead. Taking any of these courses is of course no guarantee of that but neither is spring training in the big leagues a guarantee of making the grade. The test is a good one, and the experience does no harm. This means that the program must meet certain specific needs which are common to all industry.

First of all, there is a need for background education for employees, both as to their present position and for advancement. For example, there are a number of meter testers who are given the necessary on-the-job training to perform their day-to-day tasks successfully, but these people are interested in knowing more about their particular job; for instance, the types of meters that are in use, why they are used; the history and development of electrical metering in the industry, and the theory of operation of meters.

Or the employee may wish to look further into the electrical system. A draftsman who wants to complete his college work or to brush up on some of the technical aspects of engineering can do so with courses, which are also directly concerned with the company for which he works.

Secondly, there is a need for a better understanding by both employees and management of the work of each group and of how each part of the organization depends on the other to effect basic policy toward the public.

For example, the catalog shows a course entitled "Commonwealth Edison Organization." It is a fifteen-meeting course concerning all of the departments and operations of the company, and is presented by the heads of the various departments. They use such visual aids or slides—in some cases movies—as they feel are adequate to the situation. This course gives the employees opportunities to question their department heads, to get questions answered about the why and how of certain operations, and it gives the department heads an opportunity to practice teaching technique, which, after all, is a substantial part of their job.

The course has been unusually successful because we have been able to bring about a form of competition among the group of teachers or group of department heads to do just a little better job than the one before, and it has turned out to be a very popular course.

LIGHT ON THE ATOMIC AGE

Third, there is a need for stimulating a progressive and flexible attitude. We are a relatively old organization in terms of employees' years of service. An employee with twenty-five years of service with the company is not at all uncommon. To offset a natural tendency for self-complacency in a situation of this kind, there is a need for some courses to encourage a forward-looking and an open mind. For example, we are giving a course in atomic energy which seeks to pull together the available information and to examine the possibilities of its development in the electric utility business—a preview into the future to help encourage an intelligent attitude. We were quite skeptical in starting off the course, for, unlike other subjects, there was very little background material, but already a total of fifty-five technical people have completed the program. One employee submitted a sample of uranium and another a piece of fused

quartz from the Los Alamos experiment. An ex-Navy commander, one of our engineers who formerly taught at MIT, is conducting the course.

COURSES FOR MANAGEMENT

Fourth, there is a need for educational opportunities for the management group. For a long time, we emphasized only what might be termed educational courses for employees, and the management group was somewhat neglected over the years. We are now trying to fill a recognized need pertinent to the management group. For instance, there is the need to conduct, in a tactful manner, the many and varied meetings that fall to the lot of management. Certainly, an employee expects, and has a right to expect, evidence of competent leadership among his superiors. If a superior fumbles the ball in leading meetings because of the lack of know-how, the prestige of that work area will suffer.

So, to provide the know-how, we are giving a program of conference leadership courses. The course is open to anyone of the management group who wishes to take it. They learn how to lead and how to listen, how to confer and how to be a conferee. Sometimes it is a little strenuous for the oldtimers, but we haven't had any casualties yet; and incidentally we have a way of making sure that the graduates get an immediate opportunity of putting their newly acquired technique into practice.

FULFILS SOCIAL NEED

There is also the need to provide an outlet for an employee's emotional drives. Stress is placed on these courses meeting outside of business hours, when the rush and hurry of the day are over, when an individual can sit down calmly and informally and meet people from around the system to discuss mutual problems with a sympathetic instructor. As a result, the employee gets a larger and more satisfying picture of the part he plays in the business scene.

As to what we think of the courses on the basis of thirty-odd years of experience, we are certain that after-hours education programs have their place. They are not the answer to all things, but they are an important contributing factor.

Our enrolment was down during the war, principally because of the nature of the business, but it is now back to approximately the prewar level. Upwards of 10% of our employees are voluntarily participating in this program at all times. We estimate that about 85% of them are nonrepeaters. In other words, they are persons not also taking some other course in the program.

We have often been asked what effect the advent of collective bargaining has had on the program. Our answer is that it has had none at all. There may be some reason for that in the way the program is conducted. Our policy for a long time has been to give any program which attracts a sufficient number of employees and which is not available in any of the usual educational institutions in the area.

The courses provide an opportunity for management and employee groups to meet and mingle in a different environment outside office and shop. Men from both groups have a common objective, that of mental exercise. Incidentally, management men gain needed experience and skill in the art of becoming good teachers. Since the courses are voluntary, they must compete against the normal desires of all of us to get home at the end of the day or do something that isn't too directly related to our business.

Finally, it is quality and not quantity of performance that should be the determining factor in judging the value of an education program. We believe that this sort of activity acts as the yeast in the loaf and helps flavor its whole texture.

Other Educational Methods

Thomas G. Newton, Director of Training
Armstrong Cork Company

EMPLOYEE education provides people with the the opportunity of understanding and doing better the things they have to accomplish every day. We have plenty of evidence that they want this opportunity. Employees have indicated throngh attitude surveys, personal contacts, and union activities that they want to know more about those subjects which affect them.

Until lately, industry has been blind to this situation. We have been too preoccupied with technical improvements and scientific management, and what is the result? We have been trying to plan a so-called game of industrial football, in which the players do not know how the score is kept, or the reason for the plays which are called, and the basis on which the referee, the public, judges the plays. How much better and more interesting a game we could play if we helped our employees gain an understanding of all matters affecting their jobs, their companies, and their daily activities.

Three things are important: objectives of employee education, fundamentals, and methods.

The objectives are two in number, and we cannot usually achieve one without the other. First, we want to develop more capable employees. It should be our goal to provide the chance for those who want to progress to develop to the full extent of their capacities. We should be prepared to sit down with them, discuss their interests, and suggest ways and means through which they can acquire the knowledge they require for personal development. Most of our organizations can use all of the people who can equip themselves for added responsibility. If we cannot provide

an opening for them, we must be willing to wish them success elsewhere. To meet this objective, we must make it possible for employees to acquire technical and general background information according to their individual needs.

A KNOWLEDGE OF HIS WORK

The second objective is to provide an opportunity for employees to get a greater understanding of industry and their part in it. It is realized by establishing ways for them to see how their jobs fit in with others; how the department, plant, and company are organized; and how incentive rates are built and jobs are classified. Means must be made available to learn the products which are made, their raw materials, processes and end uses, their role in industry, and many other interesting subjects.

Let me give you a case in the negative. I have just read the story of Joe Zipotas. He had served his company well for twenty-five years and had just received his service emblem. It was supposed that he knew many things about his company, but an interview disclosed that he did not know when the company was founded, how many plants the company operates, the name of the president, he did not know of more than two of the company's two hundred products and was ignorant of many other facts. No man can work with understanding unless he is informed.

SIX FUNDAMENTALS

Many of the topics to be covered might be called "little things," but they are important to the man on the job. So our objectives are to make it possible for employees to develop their capacities and get a better understanding of matters which affect them. In working for these objectives of employee education, we have come to realize certain fundamentals which are important in their achievement.

I would like to mention six of them:

One, we must first make it possible for people to get answers to questions on their minds before we try to inform them on subjects we think they should know. Give them what they want to know. Sometimes we become too technical about such a simple fundamental as this. We do not want to be like the learned men about whom Francis Bacon wrote as follows—

> "In the year of our Lord 1432, there arose a grievous quarrel among the brethren over the number of teeth in the mouth of a horse. For thirteen days the disputation raged without ceasing. All the ancient books and chronicles were fetched out, and wonderful ponderous erudition, such as never before heard of in this region, was made manifest. At the beginning of the fourteenth day, a youthful friar of goodly bearing asked his learned superiors for permission to add a word, and straightway, to the wonderment of the disputant, whose deep wisdom he sore vexed, he beseeched them to unbend in a manner coarse and unheard of, and look in the open mouth of a horse and find the answer of their questioning."

Let us ask our employees what they want to hear.

Two, employee education is more than academic instruction, and it includes a consideration of all subjects affecting people on their jobs.

Three, most of us tend to learn a lot more through contacts with others than we do in formal classes, or through the written word.

Four, the supervisor is the key person in the education of his employees, since he is more familiar with their needs and is in a better position to encourage them in doing something about them.

Five, the supervisor should be educated first, so he can carry out his responsibility for employee education.

Six, company executives must have an honest desire to educate employees, rather than merely propagandize them.

SIXTEEN METHODS

Sixteen of the methods industry uses in employee education will probably be of interest to you:

1. Induction Programs. These are the planned programs designed to introduce the new employee to his company, plant, and department. They precede job training. They cover company history, policies, programs, products, and all of the information the new man wants to have before he starts on the job. They should answer his questions. They provide a splendid opportunity for the use of films which stress the principles of industrial success, such as the importance of savings in starting a business, fair dealing with customers, the role of management, the need of resourcefulness to overcome problems of competition, fire, etc., and the need for continuous improvement. Illustrated charts and booklets are very helpful to supplement personal talks, which are the backbone of such a program.

2. Employees' Magazines and Newspapers. These publications, produced by a trained editorial staff with the assistance of department reporters and mailed direct to the homes of employees, can be the means of giving information not normally available to the majority of employees. They can include information on company programs, the manufacture of products and their end uses, what is being done in the expansion of the business, how other people have found interest and success, the meaning of terms such as "profit" and "surplus," and many other subjects. Multiplant companies can supplement a general magazine with plant newspapers to provide information of local interest. Effective publications require planned articles and an attractive format.

3. Semiannual Reports. They are intended to provide a clear explanation of the company's operations twice a year and should be mailed to the homes

of employees. Normally, they will show the income of the company, expenses, profits, and dividends, some indication of the future outlook, and a résumé of interesting company activities during the report period. No program of employee education can be complete without reports of this nature.

4. Posters and Bulletins. Poster series, designed for example to show how all people in different jobs in industry, stockholders and the public depend upon one another, are extremely helpful. They stress one point at a time. To these we can add posters and bulletins on health and safety precaution, advertising literature explaining the use of products, and sometimes letters telling of the unusual situations affecting the working of the organization and the jobs of its people.

5. Meetings of Various Types. There are many types of meetings which provide educational opportunities for employees. Some that may be mentioned are meetings of employees with their supervisor and industrial engineer to review the basis upon which the wage incentive is developed; service-award meetings, which sometimes include a dinner, at which talks are given by company executives; noon-time movie showings; and management-union meetings. A type of meeting worthy of special mention is one regularly called by a supervisor to discuss the department's operating results and the short-time future outlook, and to encourage questions from his people with the view of giving them straightforward answers. We have recently run some very effective educational meetings for the girls in our central stenographic department. They have been given the opportunity to hear a description of each of our major product lines, of special terminologies, and of sales department organization and operation. Trips through company plants have been scheduled for them in connection with these meetings, as well as a complete training program. At the end of this month, all plant managers' secretaries from all over the country will be brought to the home office for a two-day educational program.

6. Open House Programs. Working with the management organization, employee committees, after planning tours of the plant, developing displays, demonstrations, and all other necessary features, invite families and friends to see what goes on in the daily life of the plant. This is not only employee education but community education.

7. Exhibits. A number of exhibits can be arranged and staged throughout the organization. For example, we recently made up a fairly complete exhibit on the theme, "15,000 of Us," the number of our employees. It shows how people in over one hundred locations are the company, where they come from, how they are introduced to the company, how they are trained, what goes with the job, and so on. This exhibit is being scheduled for showings in all plants, and the general office. Company products also provide excellent subjects for exhibition in this field.

8. Employee Activities. While these may not seem to be a means of education at first glance, they are an excellent opportunity for employees to develop leadership and organizational ability through the promotion of recreational activities, many of which, in themselves, have educational by-products. Serving on a safety committee or using the suggestion system certainly stimulates thought and a wider horizon.

9. Review of Service. This is a procedure in which the supervisor regularly reviews the performance of each of his employees. It is not merit rating, but is solely for the purpose of determining how the employee performs in the light of the specific responsibilities of his job, and locating his strong points and those on which he can be further strengthened. The supervisor discusses this analysis with the individual employee, and, where advisable, develops a plan to assist the employee in becoming more effective.

10. Home Office Visit. This is a program probably peculiar to my company. Each month we bring to the home office about twenty supervisors from plants all over the country for a three-day program. They hear discussions by company officers and department heads and engage in conference discussion on problems they raise. A similar procedure is followed in the sales organization. A broad range of business subjects is covered in these programs.

11. Supervisory Conference and Meeting Programs. These programs provide a regular opportunity for supervisors to discuss and solve case problems, consider operating problems as they arise, and receive information on management techniques. Human problems are high on the agenda. Many meetings are used to enable supervisors to participate in policy formulation. Also under this heading are included the so-called staff meetings which are held throughout the organization and provide in themselves a liberal business education.

12. Management Bulletins. Many companies are sending periodic bulletins to all members of their management groups. They contain not only information on the business, but also happenings of interest in the business world, economic principles, legislation, etc., of interest to the management group.

13. Library. Both technical and general industrial libraries can be an important influence in employee education. They can provide not only books, but many magazines, pamphlets, and other literature at low cost to help employees widen their horizons. They

can develop bibliographies and conduct research on special subjects to meet individual needs.

14. Management and Technical Associations. Such associations are formed in many plants, engineering departments, and laboratories. They are founded to promote education in the profession of management or in the technical field they represent. Members stage some of the meetings themselves, or draw upon company representatives and outside authorities. Another closely allied method is the provision of memberships in trade associations so that members of the company can hear what others are doing. Appointment to committees in such organizations creates a real training opportunity.

15. Management Courses. A few companies are making a definite attempt to promote management education. We have just completed the first phase of such a program for the executive group conducted by the president of the company. This is being followed up each six months with a new device called a corporate staff meeting. Here, top executives discuss activity during the last six months or year, the financial situation, objectives, policies, etc., prior to publishing the financial report. Meeting guides are furnished the group attending so the information can be relayed down through the organization.

16. Tuition Refund Program. A few companies have provided financial assistance to employees taking evening courses in educational institutions. You may be interested in such a program recently announced by the Armstrong Cork Company. Any employee in the company may request approval to take evening courses, of graduate level or lower, including correspondence courses. If the course is considered generally allied to his work, approval is given. He pays his tuition and upon successful completion of the course he is given a refund for the full amount of the tuition and incidental fees. Courses in English, mathematics, and science are normally approved for any employee.

* * *

These are some of the more common methods used in employee education. You can, no doubt, think of many others, and will agree that we must use our present methods more effectively, and must still continue to develop better methods, in accomplishing our objectives of employee education. The education of employees is not something we can do all at once. George Whyte-Mellville once said: "Education should be gradual as the moonrise, perceptible not in progress, but in result." That statement holds a lot of meaning for us in industry. My company, convinced of the importance of this work, has recently appointed an assistant to the president to spend his full time on research and in helping the organization do more in this field. Employees and industry have much to gain if we can help employees to become more capable and to get a greater understanding of all subjects which daily affect them. It is our responsibility to society, expressed so well by a president of the Armstrong Cork Company twenty years ago:

> "I have the strong conviction that it is the duty, and should be the pleasure, of a corporation operating in any community, to take a real interest in whatever is good, uplifting, and for the benefit of employees. We should lend our aid to orderly municipal growth, to education, to hospitalization, sanitation, recreation, and all other activities which must be conducted on a community scale to make a city a worthwhile place in which to reside or to conduct a business.
>
> "We must not and cannot overlook the fact that many of the community problems which trouble us are the outgrowth of modern industry. A strong, continuous effort, accompanied by a firm determination to study and remedy these conditions, should be carried on, and I am sure a wonderful improvement can be made if industry as a whole will devote to the problem a little of the energy, ability, and enthusiasm it puts into the commercial side of its work."

Union Activities in Education

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LABOR education in the United States today is conducted by many different types of organizations and groups. Among them are labor organizations at all levels, independent workers' organizations, government bodies, and community groups of various types. Education organized to give workers background for effective activity has always been functional in character. Though it has changed and developed as the labor movement has grown in size and responsibility, the teaching has been developed around specific problems in the lives of the worker-student.

In the early days, most workers' education was carried on through classes, either in resident schools or local communities. Today, the workers' education movement has come to include many programs of study which grow directly out of the need to meet day-to-day problems in the community. Whether in handling grievances or assuming increasing responsibilities in the community, union activity calls for realistic and responsible action on the part of union members and officers.

WORKERS' EDUCATION BUREAU

The organization which I know best is the Workers' Education Bureau of America. It was founded in 1921 to serve as a national clearing house of information and guidance in the development of workers' education in this country. Among its principal activities

has been the establishment of labor institutes of three or four days' duration which are held in thirty-seven different states, and are usually sponsored by the State Federation of Labor and the state university. We also conduct conferences and forums on a local basis and of shorter duration. Our major emphasis is on advising educational committees of labor organizations in matters pertaining to the education of their members in such subjects as trade-union history, theory and policies, economics, collective-bargaining techniques, parliamentary law, and public speaking. Another of our functions is the publication of books and pamphlets outlining programs for workers' educational groups. We also publish a monthly newsletter, and a midmonthly series of articles on subjects of current interest to labor.

Campus Conferences

At our labor institutes, the workers meet for several days or over a week end, usually in the quiet of a college campus. Away from the bench and workshop they are better able to get a perspective on their problems and those of others and see how they all fit into the pattern of our economic life. Here they do not determine policy or pass resolutions but talk things over among themselves and listen to their leaders and those of education, government, and management discussing their common problems.

The Workers' Education Bureau in initiating the Rutgers Labor Institute seventeen years ago thought to bring together the world of labor and the world of learning to discuss realistically and objectively the problems which concern labor. This pioneer labor institute is a joint project of Rutgers University and the New Jersey State Federation of Labor. The pattern set up in 1931 has been followed in New Jersey every succeeding year and has served as a model for similar institutes in thirty-seven states.

The first step in setting up a labor institute is the establishment of a joint committee composed of representatives from the educational institution and the labor group. This committee determines which current labor problems it would be most helpful to discuss and what method would be most appropriate—whether formal speeches, panel discussions or forum sessions, or a combination of these methods. Thus the topics are not chosen for the participants by an educator, but by the participants—labor and educator together. Indeed, the deliberations of the committee are in themselves a valuable educational experience.

What They Teach at Rutgers

A survey of the themes of the annual institutes at Rutgers will show how timely have been the topics selected by the committee. In 1931, when we were in the throes of the depression, the institute considered the unemployment problem. In 1934, the recovery program held the stage. By 1937 and 1938, attention was becoming focused more and more upon the international scene. Labor's contribution to the defense program came to the fore in 1940 and 1941, and through the war years all discussions were of course concerned with the all-out war effort. Now in these days of reconstruction the emphasis is upon building a lasting peace.

You might be interested in the program we are planning at Rutgers for the Seventeenth Annual Institute. The theme will be "Labor's Stake in World Security." The key to the nationwide labor situation will be discussed by 500 representatives attending this four-day institute. Several nationally known leaders of labor, management, and high-ranking government officials and economists and international statesmen connected with the United Nations have been invited to explore the current problems of labor in state, national and world affairs.

One whole day is being devoted to a discussion of labor and management cooperation, and official representatives of management are, for the first time, joining with labor and university representatives on the joint committee which plans and conducts the programs each year. To study the techniques of promoting better industrial relations at the shop steward and foremen level we are going to discuss the educational program adopted at the Botany Worsted plant at Passaic, New Jersey.

There is the problem of industry-wide collective bargaining, and whether it should be extended or curtailed. Attention of delegates will be focused upon important national and international issues such as proposed labor legislation. The program also includes first-hand reports of conditions in Germany and Japan, and a discussion of the paramount problems facing the United Nations.

Convention Institutes

Although most of the institutes have followed the general pattern of Rutgers, the subjects discussed vary with the varied interests of the workers in different sections of the country. Some of the institutes, particularly those of shorter duration, concentrate on specific and local problems. Some find that several sectional or group meetings held at the same time, with reports made to general sessions, better fill their needs.

Another variation is the use of the institute as a type of workshop to plan a specific project. For instance, the Colorado State Federation and the University of Colorado set up their institute last fall to make definite plans for a continuing statewide program of workers' education as recommended by the state federation convention.

A modification of the labor institute is the educa-

tional forum held in conjunction with the annual state federation convention. An additional session is held before the convention opens, or one or more convention sessions are devoted to educational matters or objective discussions of current labor problems.

Colleges and universities have for many years trained both youths and adults to be better farmers, businessmen, doctors, engineers, lawyers, ministers, etc. Until recently, almost without exception, the trade unionist has been the one person to whom these institutions have not offered the opportunity for betterment in his chosen field.

UNIVERSITIES OPEN DOORS

There is one outstanding exception to this almost universal indifference of universities to a program of labor education. That is the University of Wisconsin, where the School for Workers, directed by Ernest Schwarztrauber, has for more than twenty years carried on a realistic program of workers' education which emphasizes the need for industrial as well as political democracy. A reduction in appropriations necessitated a curtailment of its year-round program and its main emphasis has in later years been upon two-week resident institutes in Madison during the summer. Conducted in cooperation with labor unions, these institutes are attended by more than 500 trade unionists annually.

With the increased importance of labor as a responsible group in the community, many other institutions of higher learning have come to realize that they have an obligation to labor as well as to other groups. This recognition has been due to a great extent to the bridge between labor and learning which the Workers' Education Bureau has been building by its labor institute program over the past seventeen years.

Today, more than eighty universities have opened their doors to trade unionists. Some now offer extensive programs designed to reach the rank and file in their home communities. Others concentrate on training a selected group of leaders. A third group has set up full four-year joint labor-management courses leading to degrees.

The most realistic program is that set up in 1944 at the University of Michigan under a grant from the state legislature. The significant feature of the university's Workers' Educational Service, directed by Arthur A. Elder, is a field service in which, during the past year, over 42,000 members of workers' organizations in forty-five different communities have attended formal classes, forums or discussion sessions in regular union meetings. Topics such as collective bargaining, shop-steward training, and union administration are studied in these various types of meetings, which are organized at the request of, and in conjunction with, the unions themselves.

Five years ago trade union fellowships were established at Harvard University to train efficient union executives. National unions select promising younger leaders to undertake a year's resident study. Most of their courses are set up especially for them: for instance, the administration and negotiation of labor agreements, accounting and analysis of financial statements, and problems of dealing with government agencies and presenting arbitration cases. However, in a few instances, they meet jointly with students training for management positions.

The most comprehensive and best financed of the state-supported programs and one which includes management as well as labor is the New York State School of Industrial and Labor Relations, which opened in November, 1945, at Cornell University. This school offers a four-year resident course leading to a bachelor's degree in industrial relations, where subjects such as labor union organization and operation, legal and constitutional aspects of labor problems and social insurance, and collective bargaining, mediation, and arbitration are included in the curriculum. Extension courses in leading industrial centers of the state and short resident courses and institutes are also being set up. In addition, a research service is provided for management and labor.

INSIDE THE UNIONS

As to what the unions are doing themselves, we also have a very extensive program which is financed out of our own funds, out of the dues which are paid by the members. Most of you know there are more than a hundred different national and international unions affiliated with the American Federation of Labor. I will take what is generally considered the best program, the one carried on by the International Ladies' Garment Workers' Union. They have had an educational program functioning for more than a quarter of a century.

If a new member joins the International Ladies' Garment Workers today, he is expected to take a very brief orientation course, in which he learns something of the historical background of the trade union movement generally and of the garment workers in particular; something of its organization and structure, the financial setup, what happens to his dues, how much goes into the organizational, educational, legislative work; and, particularly, its grievance machinery.

If you are a member of this union and aspire to be an officer, no matter at what level, you are expected to complete an officers' qualification course. Before you can be nominated for office, you must have completed the course and proved that you are eligible to serve as an officer in the union. I have attended some of these courses, particularly those for top leadership. Their international president, David Dubinsky, and

managers of the joint boards in New York attend seminars during the winter months. They have had speakers from the University of Wisconsin and Harvard, labor lawyers and government officials. They discuss some particular question which the union is concerned with at that time. That is for the top leadership.

In addition, they have a well-planned cultural program: glee clubs, orchestras, mandolin clubs, drama groups—all that sort of thing. Some of you may remember "Pins and Needles," which played for a couple of years on Broadway. That was a musical with a cast composed entirely of members of the Garment Workers' union. The skits were originally written for production before union meetings. Some smart Broadway producer recognized that it had potentialities and staged it on Broadway, and, as you know, it was a big hit.

If any fifteen members of the union indicate an interest in any subject, the union's education department is required to provide an instructor and set up the classes so that they can have that opportunity. They have classes, for example, in collective-bargaining procedure and in shop-steward training.

During the past year the Kentucky State Federation of Labor set up a Department of Education and Research. It is functioning in conducting classes and doing research work for the labor movement in Kentucky. There is a growing trend, particularly in the AFL, for educational programs to be put on by the state federations. During the past summer they ran a two weeks' resident school at Eastern State Teachers College in Richmond, Kntucky.

TRAINING IN THE CIO

The two outstanding programs, I think, in the CIO unions are those of the United Automobile Workers and of the Textile Workers' Union. In the latter union, a plan of joint labor and management study among the shop stewards and foremen at Passaic, New Jersey, is being conducted in a plant signed up with the Textile Workers' Union.

This is just one local project. The educational department of this union is doing an outstanding piece of work. Summer schools and short courses are conducted, notably in cooperation with the School for Workers at the University of Wisconsin, the Southern School for Workers, and the Hudson Shore Labor School. The work also includes local training institutes in communities where the union is active; field work activities, notably in the South, to set up recreation programs and committee activities, and to conduct officer and steward training programs; educational counseling services to locals; and the publication of pamphlets and leaflets. Among the courses taught are collective bargaining, labor history, labor economics, making your union work, public speaking and parliamentary law, and cooperation with public agencies in the extension of workers' education.

One of the fields in which unions are very active is the field of independent workers' summer schools. For twenty-five years, these schools, which were pioneers in the field of workers' education, have made possible a period of resident study by men and women workers, and have served as laboratories in testing teaching methods.

The Hudson Shore Labor School, formerly known as the Bryn Mawr Summer School for Women Workers in Industry, is located at West Park, New York. Its activities include a resident school, to which workers may come for periods of one to eight weeks, and local institutes held for specific unions or to meet special needs.

Down South we have the Southern School for Workers, which is another of the groups making an outstanding contribution to the field through long and successful work. In the early days the program revolved around the resident summer session, but today the work includes many types of service carried on in Virginia and North and South Carolina. Help is given to unions in organizing committee work, preparing contract clauses and helping the membership work on legislative issues. Classes in elementary education and reading and writing have been set up for many groups. Short schools are conducted for officers and for the rank and file. And conferences and institutes are held throughout the year.

There is also the Highlander Folk School, at Monteagle, Tennessee, with long experience in the field, which differs from the Southern School for Workers in that it has a resident center. During the summer and certain winter months institutes and short resident projects are held at the school. In addition, field workers give educational services to trade unions throughout the section. Among the courses taught are those in steward training, labor legislation, political action, labor history and economics, parliamentary law, public speaking, and union history.

A school similar to those discussed already, but organized for white-collar workers rather than industrial workers, is the Summer School for Office Workers. Its activities include a resident summer session, educational advisory services to local white-collar groups and local white-collar institutes. The resident school, to which the students come from all parts of the country, has been held for some years in the Middle West. The curriculum in both the resident school and local projects focuses on the economic plight of the white-collar workers, but is concerned also with labor history as it relates to the problems of this group of workers and to the place of the worker in the community. A teacher training institute forms part of the school.